SX-9000

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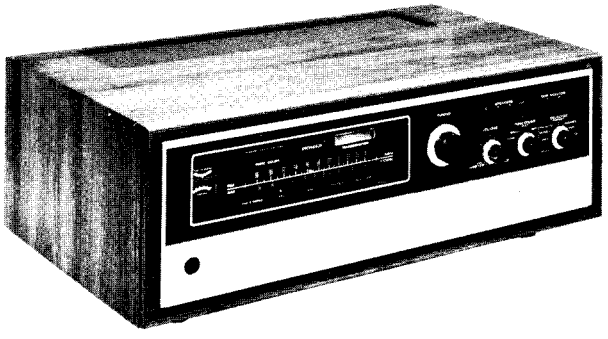


INSTALLATION, OPERATION AND SERVICE MANUAL

Including PARTS LIST, CIRCUIT DIAGRAMS, TROUBLE SHOOTING AND MOUNTING TEMPLATE.

PIONEER®

FEATURES

A MULTI-PURPOSE, EASY-TO-USE DESIGN

The SX-9000 was designed to give you a high degree of versatility in operation. You can, for example, use two microphones, two tape decks, two headsets with the SX-9000. All controls are rationally placed for easy use. The circuitry is quite advanced, on a par with professional designs.

CLEAN-LINED, CONTEMPORARY APPEARANCE

The SX-9000 looks good, too. The front incorporates a folding panel that adds to its distinctive design. When in operation, the smoked glass dial window lights up with subdued illumination, and the source also lights up for quick identification.

HIGH PERFORMANCE TUNER

The SX-9000 employs the latest circuitry, including FET and IC's. The result is a professional receiver of exceptional sensitivity and stability.

PRE-SET TONE COLORS

In addition to the normal bass and treble controls, there is a 4-position tone color selector knob. This provides quick switching from "flat" to "soft", "bass" or "vivid". These characteristics are symbolized in an illuminated window in the dial face.

TAPE-TO-TAPE MONITORING

Two buttons on the front panel allow easy, one-touch monitoring of tapes "A" or "B" when you use the SX-9000 to copy directly from one tape to another.

FOOLPROOF MICROPHONE USE

When either microphone knob is set to OFF, the unit operates in parallel to provide monophonic signals for both speakers without having to set the mode switch.

REVERBERATION EFFECT

Also included is a reverberation effect knob. The degree of "echo" is easily read in the "Reverberation" window in the dial face.

SPECIAL "OVERLOAD PROTECTION"

You can play up to three different pairs of speaker systems through the SX-9000 in combinations A, B, C, A+B, A+C, B+C. If all three are accidentally turned on, however, the "Overload Protection" goes into action and the speakers are automatically shut off.

EARPHONE VERSATILITY

Because the SX-9000 has two "earphones" output jacks, two people may listen simultaneously with earphones without having to go through an accessory junction box.

LINE VOLTAGE SELECTION AND FUSE

SWITCHING LINE VOLTAGE SETTING AND FUSE

To remove the fuse, turn the fuse cap located on the line voltage selector switch in the direction indicated by the arrow. Then remove the fuse plug from the unit. Put the fuse plug back so that the proper line voltage marking can be seen through the cut on the edge of the plug. Whenever the position of the selector switch is changed, check the rating of the fuse. A 1.5-ampere fuse is to be used for either 220V or 240V operation and a 3-ampere fuse for 110V, 120V or 130V operation. If the rating of the fuse is correct, replace cap.

FUSE REPLACEMENT

If the fuse blows, remove the fuse cap and replace the fuse with a new one.

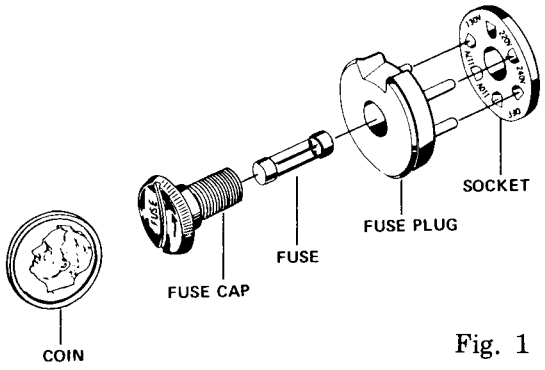


Fig. 1

Take off the fuse cap by turning it with a coin, etc. in the direction indicated by the arrow mark.

STEREO SYSTEM

The SX-9000 is general-purpose stereo amplifier. Connect it to the speaker systems (two to six), turntable, tape recorder, etc., which are separately available.

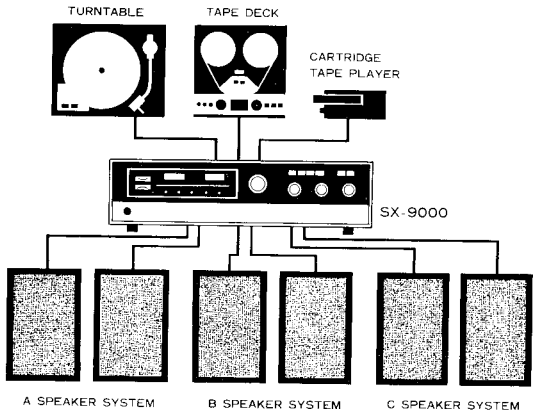


Fig. 2

INSTALLATION

When installing your stereo system, check the following points.

- The place should be well-ventilated, and free from dampness and dust.
- The units should not be exposed to direct sunlight.
- The units should not be placed near radiators or other heating units.
- The place should be substantial and roomy enough for the installation, when installing the unit on a shelf.

A WORD ABOUT ROOM ACOUSTICS

The quality of reproduced sound varies according to the size and shape of the room, the materials of walls, floor and ceiling and the amount and arrangement of furniture.

Too harsh or "bright" a sound usually results from too many hard reflecting surfaces, and/or too low a ceiling. This condition is improved by having ample carpet area or covering the wall (especially that facing the speakers) with a thick curtain.

On the other hand, too many absorbing surfaces will tend to "soak up" the sound, resulting in a certain "deadness".

Furniture may be rearranged to provide irregular reflection of the sound. In any event, the true stereo effect is lost if the two speaker systems are placed too far apart. This may be corrected by angling them slightly toward each other or reducing the distance between them.

SPEAKER SYSTEM CONNECTIONS

- First remove the speaker connector plugs from the accessories bag and then connect the speaker leads as shown in Fig. 3. Be sure to match the speaker and plug polarities.
- After the plugs are connected, insert the one for the right channel in the left side of the SPEAKER OUTPUTS (A) panel on the rear of the unit. Connect the left channel to the right side of this panel as shown in Fig. 3.(Refer also to the connection diagram on Page 4.)
- If you have one (or two) more speaker system(s), connect them in the same way, using the B (and C) terminals.

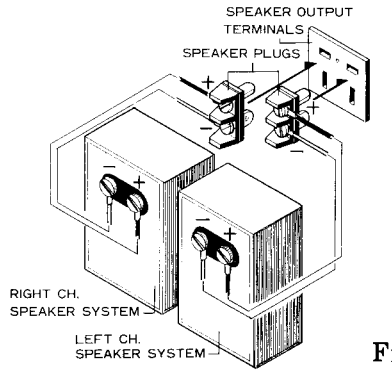


Fig. 3

ANTENNA AND GROUND CONNECTIONS

When using the SX-9000 at a place of low field strength or distant from the station, select the most suitable FM and AM antennas as follows, and the efficiency of any antenna depends on its height more than its length.

FM ANTENNA

- Reception is easier if the building is primarily of wood and is near the FM station, in this case, use the accessory T-type indoor antenna. Unfold the horizontal section of the antenna to its full length, and determine the best direction for the antenna while actually receiving an FM broadcast program. Attach the horizontal section to a wall or other place in the determined direction. (See Fig.4.)
- When using the SX-9000 at a relatively long distance from the station, or within a building or home with relatively thick walls, or vicinity of tall buildings, erect an FM outdoor antenna, and connect it to the FM antenna terminals as shown in Fig. 5.

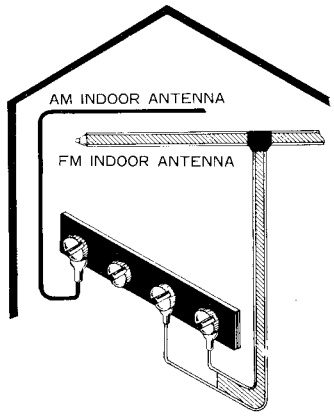


Fig. 4

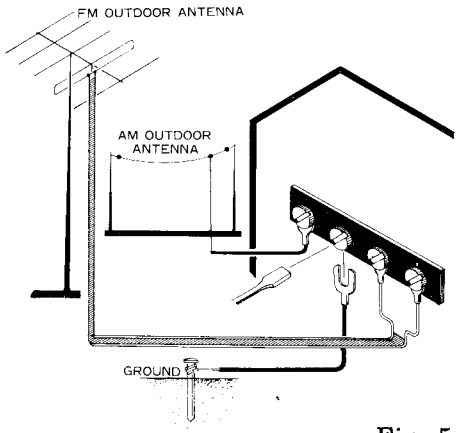


Fig. 5

AM ANTENNA

- If your house is located in area relatively close to the AM station, the ferrite loopstick antenna provided on the back of the SX-9000 will be sufficient for reception of AM broadcast program. The antenna is directional it should be moved about while listening to a station and set at the position which provides the best reception. (See Fig. 6.)
- If the loopstick antenna does not provide sufficient sensitivity for reception and static is noticeable, put the furnished antenna wire on the wall and connect one end of the wire to the AM antenna terminal. (See Fig. 4.)
- If you want reception from a distant AM station, you may have to set up an AM outdoor antenna. In such a case, connect one end of the AM outdoor antenna to the AM antenna terminal. (See Fig. 5.)

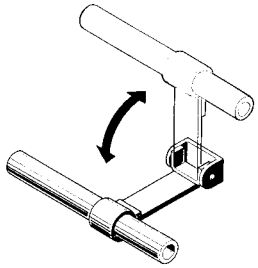
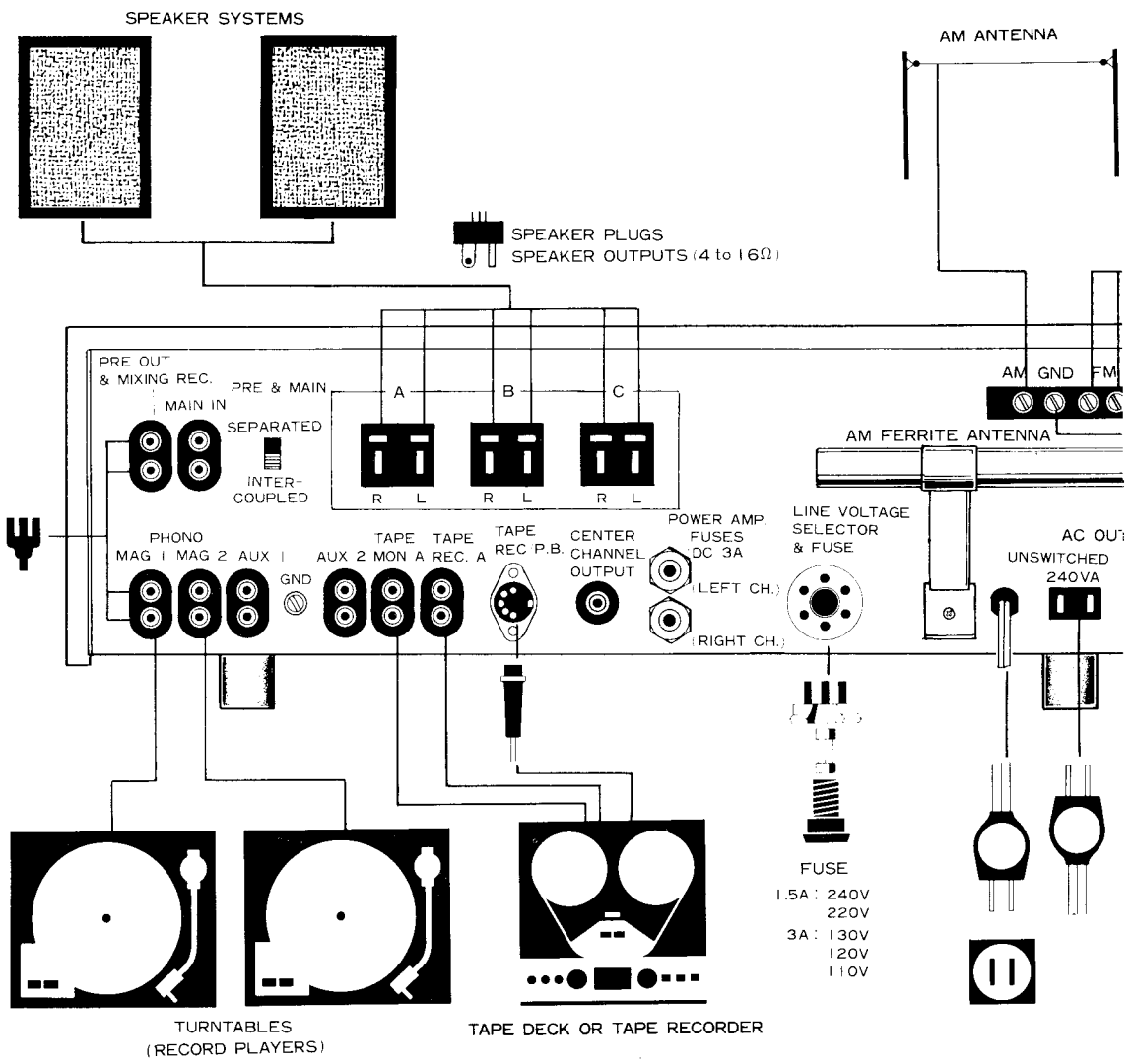


Fig. 6

CONNECTION DIAGRAM

NOTE :
If connecting one set of speaker systems to speaker output terminal the speaker of each channel should be 4 to 16 ohms : however, both output terminals (A, B and C speakers)to two speaker systems the of each channel, 8 to 16 ohms.



GROUNDING

The SX-9000 will provide stable performance whether grounded or not. In rare case, however, grounding may help. If so, connect a wire from the GND terminal to a water pipe or balcony, fastening it FIRMLY. Never use a gas pipe as a ground.

MICROPHONE CONNECTION

Insert the plug on the microphone cord into either one of the MIC jacks on the front panel of the unit.
Use both jacks when you wish to employ two microphones at the same time.

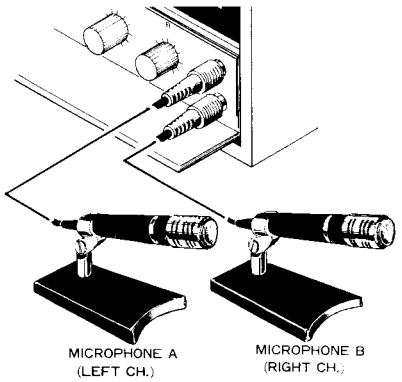


Fig. 8

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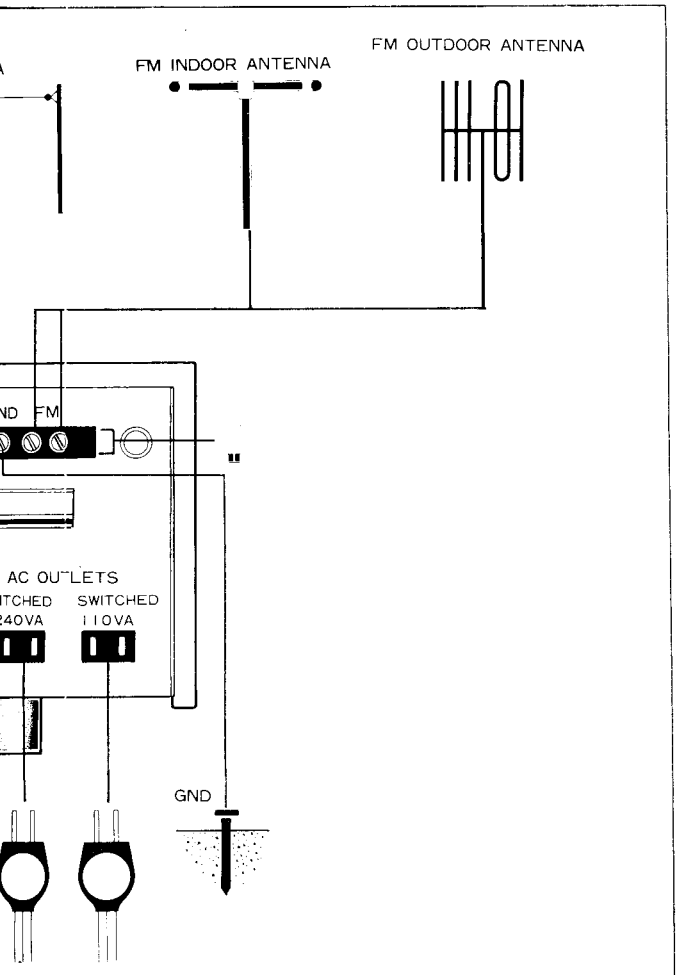


Fig. 7

NTABLE CONNECTION

ne turntable is equipped with a moving-magnet type ridge, connect its output cords to the PHONO MAG rminals on the rear of the unit. If the turntable has a tal cartridge, connect it to the AUX 1 terminals.

nect the left channel cord to the upper terminal, the t to the lower. If the cartridge is of monophonic type, er terminal will do.

econd turntable with magnet type cartridge is to be l, connect its cords to the PHONO MAG 2 terminals.

turntable with a moving-coil (MC) cartridge is to be l, either a matching transformer for MC cartridge or rate head amplifier must be employed.

ne turntable output cord plugs do not match the inals of this unit. In such a case, replace the plugs the spares provided in the accessories bag.

TAPE DECK (RECORDER) CONNECTION

- A tape deck connected to this unit must have a record/playback preamplifier built-in. PIONEER's models T-600 and T-500 feature characteristics ideally suited to the SX-9000.
- The connected tape recorder should also have output terminals for tape recorder connection (LINE OUT) or tape monitor terminals.

CONNECTION FOR TAPE RECORDING

Connect this unit's TAPE REC terminals to the signal input (LINE IN) terminals of the tape deck. Use the cords provided with the deck. The upper terminal is for the left channel, the lower for the right. If the tape deck is of monophonic type, use the CENTER CHANNEL output terminal instead.

CONNECTION FOR TAPE PLAYBACK (OR MONITOR)

Connect the LINE OUT or TAPE MONITOR terminals on the tape deck to the TAPE MON terminals on this unit. Connection is done in the same way as described in the above paragraph.

USE OF RECORD/PLAYBACK CONNECTOR

The tape deck has a DIN type record/playback connector, all recording and playback connections can be made by means of this one (optional) cord. Plug one end into the TAPE REC/P.B. connector on this unit and the other into the corresponding connector on the tape deck. In this case no other connection cords are necessary.

CONNECTION FOR MIXED RECORDING

Connect the tape deck input terminals and this unit's PRE OUT & MIXING REC terminals. Connection is made in the same way as outlined above.

CONNECTION WHEN USING TWO TAPE DECKS (RECORDERS)

When using two tape decks, for example, when you wish to edit an already-recorded tape or practice along with a recorded concert, etc., and then hear the results, connect the second tape deck to the TAPE MON B and TAPE REC B jacks on the front of the SX-9000. These jacks take 1/4" standard phone plugs.

FRONT PANEL FACILITIES

POWER

Push once to switch on the power, once again to turn it off.

PHONES JACKS

These phones jacks for stereo headset(s).
The two jacks (A, B) are available for connection with two stereo headsets.

BASS

Turn this knob to the right to accentuate bass tones, to the left to reduce them. Set the knob at its center position for flat response.

TREBLE

Use of this knob is similar to that of the BASS knob.

REVERB

This is the reverberation adjustment knob. Turn it to the right to increase reverberation, to the left to reduce it.

FILTER

LOW: Use this filter to cut out low-frequency interference, such as motor rumbling or hum.
HIGH: Use this filter to cut out high-frequency interference, such as that from fluorescent lights.

FM MUTING

This switch is used to suppress much noise between FM stations when tuning. In a fringe area, however, this switch should be kept off because it may suppress the desired station signal at the same time.

LOUDNESS

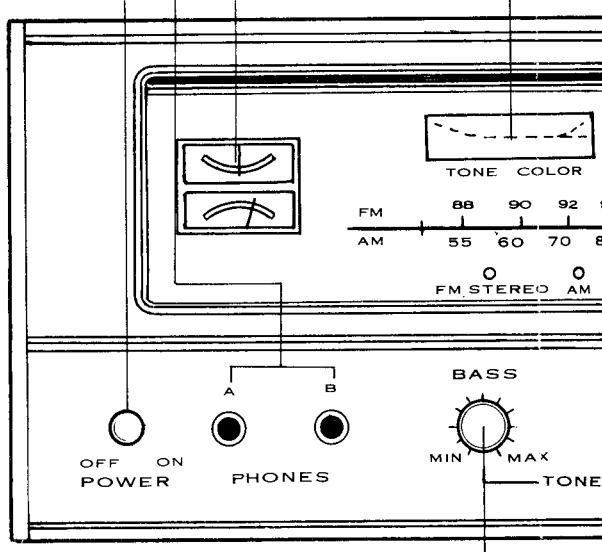
At reduced volume the ear's sensitivity to extremely low and high frequencies is reduced. This switch compensates for that phenomenon by emphasizing these frequencies. At normal or high volumes this switch should be kept off.

TAPE MON B JACK

This jack is for connecting to the LINE OUT terminals of a tape deck or tape recorder. It is designed to accept a 3-P type plug.

TAPE REC B JACK

For connecting to the LINE IN terminals of a tape deck (recorder). Allows recording of another program source or tape for editing.



TUNING INDI

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TUNING

This knob is
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TONE COLO

INDICATOR

BALANCE CO

Used to adjust
right channels
channel sound

MODE SWITC

Controls the s
unit as follows
REV: Stereo
reverse
ST: Norma
LT: Left
speake
RT: Right
speake
L+R: Left a
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ING INDICATOR

selecting an AM broadcast, tune so that the dial er of the lower meter deflects as far to the right as ble.

an FM broadcast, use the lower meter in the same Precision FM tuning is also possible by adjusting so the dial pointer of the upper meter is centered.

ING

knob is used to locate AM or FM stations. Watch uning meter(s) for more precise tuning.

E COLOR INDICATOR

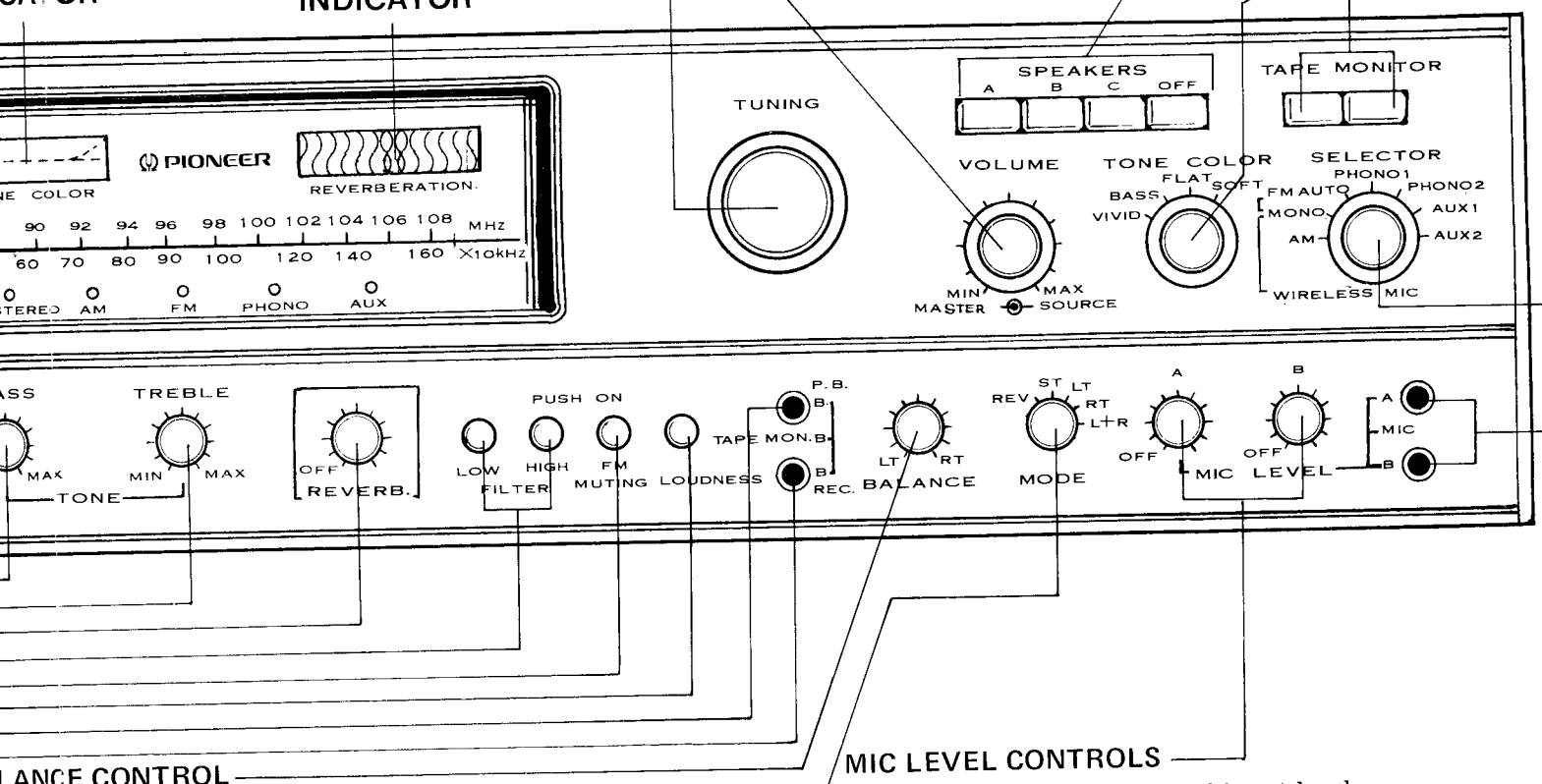
REVERBERATION INDICATOR

SOURCE VOLUME

This knob is used to adjust the volume of AM and FM broadcasts, record play and tape playback. It is also used to balance the program source signal level during mixed recording with a microphone.

MASTER VOLUME

Turn this knob to the right to increase the volume from the speakers. If this knob is turned down all the way no sound will come from the speakers, even though the SOURCE and MIC LEVEL volume controls are turned all the way to the right.



LANCE CONTROL

d to adjust the stereophonic balance between left and t channels. Turning to the left strengthens the left nnel sound; to the right, the right channel.

DE SWITCH

trols the stereo and mono output functions of the t as follows.

V: Stereo, with right and left channel signals reversed.
: Normal stereo.
: Left channel signal fed to both left and right speakers.
: Right channel signal fed to both left and right speakers.
R: Left and right channel signals mixed, then fed to both left and right channel speakers.

MIC LEVEL CONTROLS

Control the microphone signal input level.
Control A is for a microphone connected to MIC JACK A, and Control B for MIC JACK B. Turning either to the right increases the signal.
Microphones can be used at any time, for mixing with another sound source, such as a record or recorded tape. When a microphone is not being used, that control should be turned all the way to the left (off).

NOTE: When only one microphone is used, its signal is monaurally fed through both left and right speakers, regardless of which jack is used.
When two microphones are used, however, the one connected to jack A broadcasts through the left speakers, while the one connected to jack B is heard through the right.

SPEAKERS

These switches turn the various speaker systems on and off. Push each button once to turn it on, once again for off. Pushing the A button will cause the sound to be reproduced from the speakers connected to the SPEAKER A terminals. The B and C buttons control their corresponding terminals on the rear of the unit.

NOTE: Only two speaker systems can be used at the same time (i.e., A+B, B+C, or A+C). If all three speaker buttons are pushed at the same time, no sound will be reproduced.

If you wish to shut off all speaker sound, simply press the OFF button.

TONE COLOR

This switch is for selecting the particular tone to suit your mood or the music being heard.

VIVID: Emphasizes highs and lows for more sound clarity

BASS: Emphasizes bass tones.

FLAT: Flat, untempered tone.

SOFT: High tones relatively softened.

TAPE MONITOR

Depress this button to monitor a recording; press it again and it shuts off. During record or tape play, or when listening to a broadcast, leave this switch off. Turning it on automatically switches off the speakers. This button is intended to aid in checking recording or editing conditions.

There are two TAPE MONITOR jacks, A and B, on the rear (A) and front (B) of this unit, and these two buttons correspond to them. Button A directs the signal through jack A, and button B through jack B.

SELECTOR

This switch is for choosing the program source.

AM: For receiving AM broadcasts.

FM MONO/WIRELESS: For FM monophonic broadcasts, or for broadcasting the signal from a wireless FM microphone.

FM AUTO: For automatic switchover between FM mono and stereo broadcasts.

PHONO 1: For playing records on a turntable connected to the PHONO 1 terminals.

PHONO 2: Same as above, for PHONO 2 terminals.

AUX 1: For playing signals fed to the AUX 1 terminals.

AUX 2: Same as above, for AUX 2 terminals.

MIC JACK A, B

Plug a microphone used into one of these jacks. Two microphones can be used at the same time.

RECEPTION OF FM

1. Set the SELECTOR switch to FM STEREO.
2. Turn the MUTING switch on (unless the signal strength is very low—then leave it off).
3. Tune in the desired station while watching the TUNING meters.
   Best reception is obtained when the dial pointer of the lower meter deflects as far to the right as possible for that station, while that of the upper meter is centered.
   If the broadcast is stereo, the FM Stereo indicator will light up. It remains unlit if the broadcast is monophonic, and the set automatically switchover for monophonic reception.
4. After tuning is complete, slowly turn up the VOLUME SOURCE and MASTER knobs until the proper level is achieved.
   Then adjust the BASS, TREBLE, TONE COLOR and other controls for the most pleasing sound.
5. To increase reverberation, turn the REVERB knob to the right.
   For FM reception located far away from the station, or when external noise is high, reception can be improved by setting the SELECTOR to FM MONO. In this case, however, stereo programs will be received as monophonic.

RECEPTION OF AM

1. Set the SELECTOR switch to AM.
2. Tune in the desired station while watching the lower TUNING meter. Tune so that the dial pointer deflects as far to the right as possible for that station.
3. After tuning is complete, slowly turn up the VOLUME to the desired level, then adjust the BASS, TREBLE and TONE COLOR controls.
4. To increase reverberation, turn the REVERB knob to the right.

If noise is extremely high during both FM and AM reception, the problem could be in the antenna and ground. Reread the section, ANTENNA CONNECTION AND GROUNDING, page 3.

LISTENING TO RECORDS

1. Set the SELECTOR switch to PHONO 1 or PHONO 2.
   To use the turntable connected to the PHONO 1 terminals, set to PHONO 1, for that connected to PHONO 2, set to PHONO 2.
2. If the record is monophonic, set the MODE switch to either L or R.
3. Adjust the VOLUME, BASS, TREBLE and TONE COLOR controls.
4. To increase reverberation, turn the REVERB knob to the right.

USING MICROPHONES

The SX-9000 permits the use of two microphones at once, for such purposes as recording a concert in stereo; even performances or dramas in large theaters can be efficiently recorded.

1. Turn the VOLUME - SOURCE knob all the way down if microphone recording only is desired. If mixed recording, combined with music from a record, etc., is desired, set the SOURCE knob to the best level.
2. The MIC LEVEL A knob controls the input from a microphone plugged into MIC jack A; knob B controls jack B. Turn either of these knobs to the right to increase input signal strength. Adjust the level while watching for "howling" (acoustical feedback of the speaker signal through the microphone). If this occurs, reduce the volume or separate the microphone(s) and speakers. If only one microphone is used, plug it into either jack. If setting the MIC LEVEL for another jack not being used to OFF, the sound will be reproduced from both speakers.

   NOTE: When adjusting the MIC LEVEL control, be careful not to cause howling.
   Howling is of course unpleasant to hear, but it can also damage the VU meter of your tape recorder or deck during recording.
3. If two microphones are used, the one connected to jack A will broadcast over the left channel, B the right. If you wish to use only one of these microphones at any time, turn the unused microphone level control off. Then the microphone used will broadcast over both channels.

USING TAPE DECKS AND TAPE RECORDERS

As shown in Fig. 9, signals heard from the speakers are normally fed to the SX-9000 TAPE REC A and B terminals. When recording, set the SELECTOR and MODE switches to your program source. Refer to the sections on Listening to Broadcasts and Listening to Records. Recording signals cannot be regulated by the SX-9000 VOLUME, BASS, TREBLE and TONE COLOR switches. These must be adjusted by the recording level control on the tape deck/tape recorder.

NOTE: When using mono tape recorders, either the left channel signal or the right channel signal may be recorded, but not both. The CENTER CHANNEL terminal should therefore be used.

TAPE MONITOR

With 2-head and 3-head type tape recorders fitted with monitor mechanisms, turning the TAPE MONITOR switch ON during recording has the following effects (if recording and playback heads are first connected): With the 2-head type, signals fed to the recording head can be monitored; with the 3-head type, signals can be monitored immediately after recording. (See Fig. 9.)

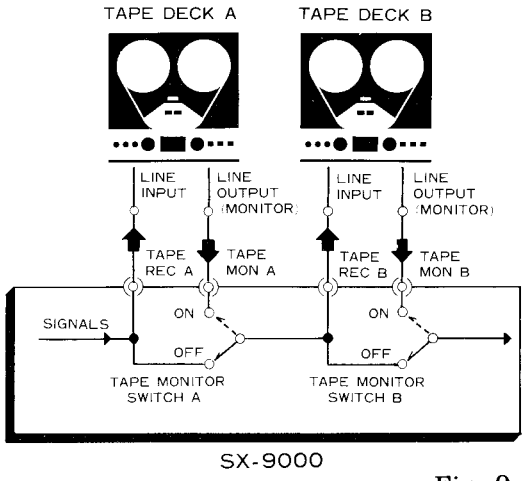


Fig. 9

PLAYBACK

- Turn TAPE MONITOR SWITCH A or B ON and adjust the VOLUME, BASS, TREBLE and TONE COLOR switches to the desired levels.
- When TAPE MONITOR SWITCHES A or B are turned ON, the position of the SELECTOR becomes immaterial.

MIXED RECORDING

When using a microphone in mixed recording, connect the tape deck to the PRE OUT terminal and adjust the volume of the microphone with the MIC LEVEL knob while listening to the record or broadcast. Do not turn this knob too high as this will result in howling and may damage the VU meter of the tape deck.

EDITING RECORDING TAPES

By using two tape decks and re-recording only certain parts of a tape, you can edit old tapes taken from FM broadcasts, etc. and obtain a brand-new tape containing only your favorite recordings:

1. As shown in Fig. 10, place the old tape or mother tape on TAPE DECK A and turn TAPE MONITOR SWITCH A ON.
2. Place the new tape on TAPE DECK B.
3. Playback is performed on TAPE DECK A and recording on TAPE DECK B.
   By turning TAPE MONITOR SWITCH B ON and OFF you can monitor the recording. Be sure not to turn TAPE MONITOR SWITCH A OFF.

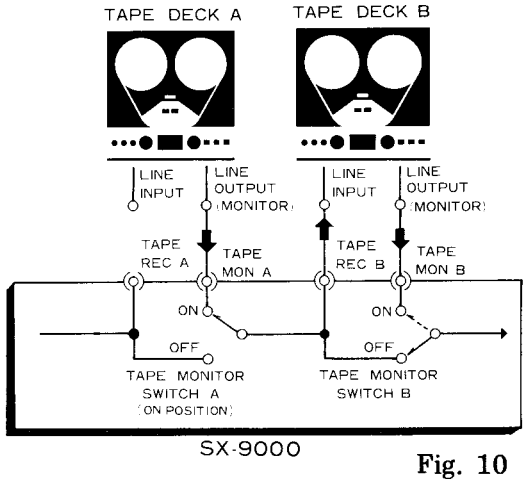


Fig. 10

YOU CAN ALSO USE YOUR SX-9000 AS FOLLOWS

MULTICHANNEL AMPLIFIER SYSTEM

By using an ELECTRONIC CROSSOVER NETWORK (PIONEER MODEL SF-700) and one or two POWER AMPLIFIERS, you can build a high-quality multichannel amplifier system.

a. Set the PRE & MAIN switch on the rear panel of the SX-9000 at the SEPARATED position.
b. Connect the PRE OUTPUT terminal of the SX-9000 and the CROSSOVER NETWORK INPUT terminal. Also connect the CROSSOVER NETWORK LOW-RANGE OUTPUT terminal and the MAIN INPUT terminal of the SX-9000.
c. For MID-RANGE and HIGH-RANGE a separate POWER AMPLIFIER must be used.

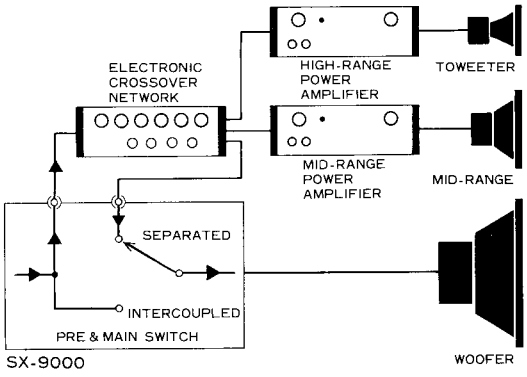


Fig. 11

3-D STEREO SYSTEM

By connecting a POWER AMPLIFIER with a low-pass filter of 150 - 250Hz cut-off frequency to the CENTER CHANNEL OUTPUT terminal in the rear panel, you can set up a 3-D stereo system.

CONDITIONS FREQUENTLY MISTAKEN FOR MALFUNCTION

Noise: There are a variety of noises relating to the operation of a hi-fi unit. These are generally divided into two types; (1) the unit is faulty (a transistor or part has deteriorated) and (2) an external source of noise is adding noise to the unit.
When a hi-fi unit produces an unpleasant noise, it is often assumed that the unit is faulty, but statistical records indicate that the majority of noises produced in hi-fi acoustic units result from external sources of noise. Due to the inherent high amplifier and reproduces extraneous noises into definite output noise. If your receiver produces a noise, check according to the following table and trace out the source of noise for the appropriate corrective action.

	Symptom	Suspected Source of Noise	Diagnosis and Remedy
When Listening to Broadcast	Continuous or intermittent noise like jjjjjj or zzzzzz.	• Static (lightning) • Fluorescent lamp, motor, or thermostat may be in use in house or in the vicinity of the house.	In many cases, it is very difficult to remove the source of noise. In order to make the radio input larger than the noise level, set up a good outdoor antenna and make a complete grounding.
	When a station is tuned in, hum is mixed in the program.	• Poor fluorescent lamp, motor, or electric heater may be in use in house or near the house.	Reversing the line plug may occasionally alleviate this noise problem. Usually it is very difficult to eliminate the noise.
	Hissing sound noise in AM (medium wave) reception.	• The frequency of an adjacent station is interfering with that of the station being tuned in (10kHz beat interference). • TV set is on in the same house with the receiver.	Impossible to remove such interference. If the cause of such noise is in the TV set, increase the distance between the TV set and receiver.
	Static noise (in particular, when automobiles run close to the house).	• White noise generated from automobile engines. • Radio frequency sewing machine or welding machine being used near your house.	In an area surrounded by hills or high buildings, the FM input signals are very weak. Thus the noise limiter in the circuit loses its function. Set up an outdoor FM antenna having many reflector elements.
	Reception of FM stereo program contains more noise than FM mono program.	• Note that the service area covered by an FM stereo broadcast is about 50% of that of a regular mono broadcast.	Increasing FM input signal may alleviate this problem. Use an exclusive FM outdoor antenna instead of the indoor T-type antenna.
When Playing Records	Hum or buzz. When switched to radio reception, the noise disappears.	• Poor connection of shielded wire (a). • Jack connection is loose. (b) • Line cord or fluorescent lamp is near the shielded wire. (c) • Poor grounding. (d) • Ham transmitting station or TV transmitting station is near your house. (e)	Correct the conditions stated in (a), (b), (c) or (d). In case of (e), report it to an official activity.
	Output tone quality is poor and mixed with noise. Treble is not clear.	• Stylus is worn out. (a) • Record is worn out. (b) • Dust adheres to stylus. (c) • Stylus is improperly mounted. (d) • Stylus pressure is not proper. (e) • The TREBLE level is too high.	Check (a) through (e) and correct the condition. Lower the TREBLE level.

Watch for the following conditions; these are also apt to be mistaken for malfunction.

	Symptom	Suspected Source of Noise	Diagnosis and Remedy
	Power is not turned on although the power switch is set to ON.	• Fuse blows. (a) • Line plug is loose. (b)	Check (a) and (b) and correct the condition.
	In playing a record, increasing the volume causes howling.	• Distance between the turntable and the speakers is too short. • The place on which the turntable or speakers are set is unstable.	Change the distance or rearrange the installation increase of the unit and speakers. (Installing the turntable on a firm, solid stand may alleviate this problem.) Do not enhance the BASS sound level excessively.

SPECIFICATIONS

SEMICONDUCTORS

Audio Section
- Transistors 41
- Diodes 11

Tuner Section
- IC's 5
- FET 1
- Transistors 12
- Diodes 11

AUDIO SECTION

Music Power Output	8Ω 150 watts total (IHF rating) 4Ω 240 watts total
Continuous Power Output (Each channel driven)	8Ω 62w/62w (1kHz) 4Ω 85w/85w (1kHz)
Continuous Power Output (Both channel driven)	8Ω 50w + 50w (1kHz) 4Ω 60w + 60w (1kHz)
Harmonic Distortion	Less than 0.5% (at 1kHz, continuous power output)
Damping Factor	30 (at 8Ω, 1kHz)
Frequency Response	10Hz to 35kHz, ±1dB
Power Bandwidth	10Hz to 35kHz (IHF rating)
Hum and Noise	PHONO MAG .....more than 80dB AUX .....more than 100dB
Sensitivity and Impedance (at 1kHz, continuous power output)	PHONO MAG (1,2) .....2.5mV, 50kΩ AUX (1,2) .....160mV, 50kΩ TAPE MONITOR (A,B) .....160mV, 50kΩ MICROPHONE (A,B) .....1.6mV, 65kΩ MAIN INPUT 500mV, 180kΩ
Output Jacks and Terminals	Speakers (A,B,C) 4 to 16 ohms Stereo Headphones Jacks (A,B) TAPE RECording Jacks (A,B) TAPE REC/P.B. Connector (DIN type) PRE OUTPUT 500mV, 13kΩ
Equalization Curve	PHONO.....RIAA
BASS Control	+12.5dB, -14dB (at 50Hz)
TREBLE Control	+9dB, -11dB (at 10kHz)
Filters	LOW.....Cut 6dB (at 50Hz) HIGH.....Cut 12dB (at 10kHz)

Loudness Contour	Switchable to ON-OFF +12dB (at 50Hz), +7dB (at 10kHz), with VOLUME control set at-40dB, VOLUME
Reverberation	Reverberation easily controllable
TONE COLOR Switch	4-position knob for "VIVID", "BASS", "FLAT" and "SOFT"
MICrophone Mixing	Stereo .....through both "A" and "B" channels Monophonic .....through either "A" or "B" channel

FM TUNER SECTION

Frequency Range	87.5MHz to 108MHz
IHF Sensitivity	1.6μV (at 98MHz)
Capture Ratio	1dB (at 98MHz)
Selectivity	40dB (at 98MHz)
Image Rejection	90dB (at 98MHz)
Signal to Noise Ratio	More than 65dB
Antenna Input	300ohms balanced

FM MPX SECTION

Circuit	Time-switching type demodulator FM Mono-Stereo automatic selection
Channel Separation	40dB (at 1kHz)
Harmonic Distortion	0.8% (at 1kHz) 100% Mod.

AM TUNER SECTION

Frequency Range	525kHz to 1,605kHz
IHF Sensitivity	9.5μV
Image Rejection	78dB (at 1,000kHz)
Antenna Input	Built-in ferrite loopstick antenna

MISCELLANEOUS

Power Requirements	110, 120, 130, 220 and 240 volts (switchable)
Power Consumption	350 VA (310W) MAX.
Dimensions (Overall)	20-9/16″ 522 mm (width) 7-5/8″ 194 mm (height) 13-9/16″ 344 mm (depth)
Weight	Without Package 34 lb 8 oz 15.7 kg With package 42 lb 3oz 19.2kg

ALIGNMENT INSTRUCTIONS

ALIGNMENT OF FM SECTION

Disconnect OUTPUT terminal of front-end from IN terminal of IF unit

Position of Switch : SELECTOR ..... FM MONO
MUTING ..... OFF

Volume Control Setting : Fully Counterclockwise

STEPS	Input		Level	Dial Setting	Output Equipment Connections	Alignment	
	Equipment Connections	Frequency				Adjust	Remarks
1	Sweep Generator IN terminal of IF unit	10.7MHz	40dB		Oscilloscope Ⓜ terminal	T_1 T_2 T_3 of IF Unit	Adjust for maximum sensitivity and symmetrical characteristics
2			80dB			Check symmetry of curve	
3	Remove electrolytic capacitor C_{12} (of FM IF Unit 4.7μF) in detector circuit						
4	Sweep Generator IN terminal of IF unit	10.7MHz	40dB		Oscilloscope OUT terminal	T_4 of IF Unit	Adjust the primary core of T_4 so that slope of straight portion of "S" curve will become the steepest and adjust the secondary core so that the center of "S" curve will coincide with the center of the marker.
5	Connect OUTPUT terminal of front-end to IN terminal of IF unit						
6	Sweep Generator TP of Front-end	10.7MHz	40dB	Point of no interference as near as 88MHz	Oscilloscope Ⓜ terminal	T_2 of front-end	Adjust for maximum sensitivity and symmetrical characteristics
7			80dB			Check symmetry of curve I OF	
8			40dB		Oscilloscope OUT terminal	T_4 of IF Unit	Adjust similarly to STEP 4.
9	Connect electrolytic capacitor C_{12} (4.7μF)						
10	Signal Generator FM Antenna terminal	90MHz	20dB (400Hz 30%)	90MHz	Oscilloscope V T V M OUT terminal	L_5 of front-end	Adjust for maximum deflection
11		106MHz		106MHz		CT_4 of front-end	
12	Repeat STEPS 10 and 11 several times						
13	Signal Generator FM Antenna terminal	90MHz	10dB (400Hz 30%)	90MHz	Oscilloscope V T V M OUT terminal	L_1, T_1, T_2 of front-end	Adjust for maximum deflection
14		106MHz		106MHz		CT_1, CT_2, CT_3 of front-end	
15	Repeat STEPS 13 and 14 several times						

ALIGNMENT OF MPX SECTION

Position of Switch: SELECTOR ··· FM AUTO
MUTING ··· OFF
Volume Control Setting: Fully Counterclockwise
Input Signal: Main (L+R) 40.5KHz Deviation (60%)
19KHz Pilot 7.5KHz Deviation (10%)

STEPS	Circuit to be adjusted	Input		Connect VTVM	Alignment	
		Connections	Signal		Adjust	Remarks
1	Separation	MPX SG to FM Antenna terminal	Sub (L−R)	AC VTVM REC terminal L or R	L_1	Adjust for maximum deflection.
2			L or R		VR_1	Adjust for minimum deflection of the other channel.

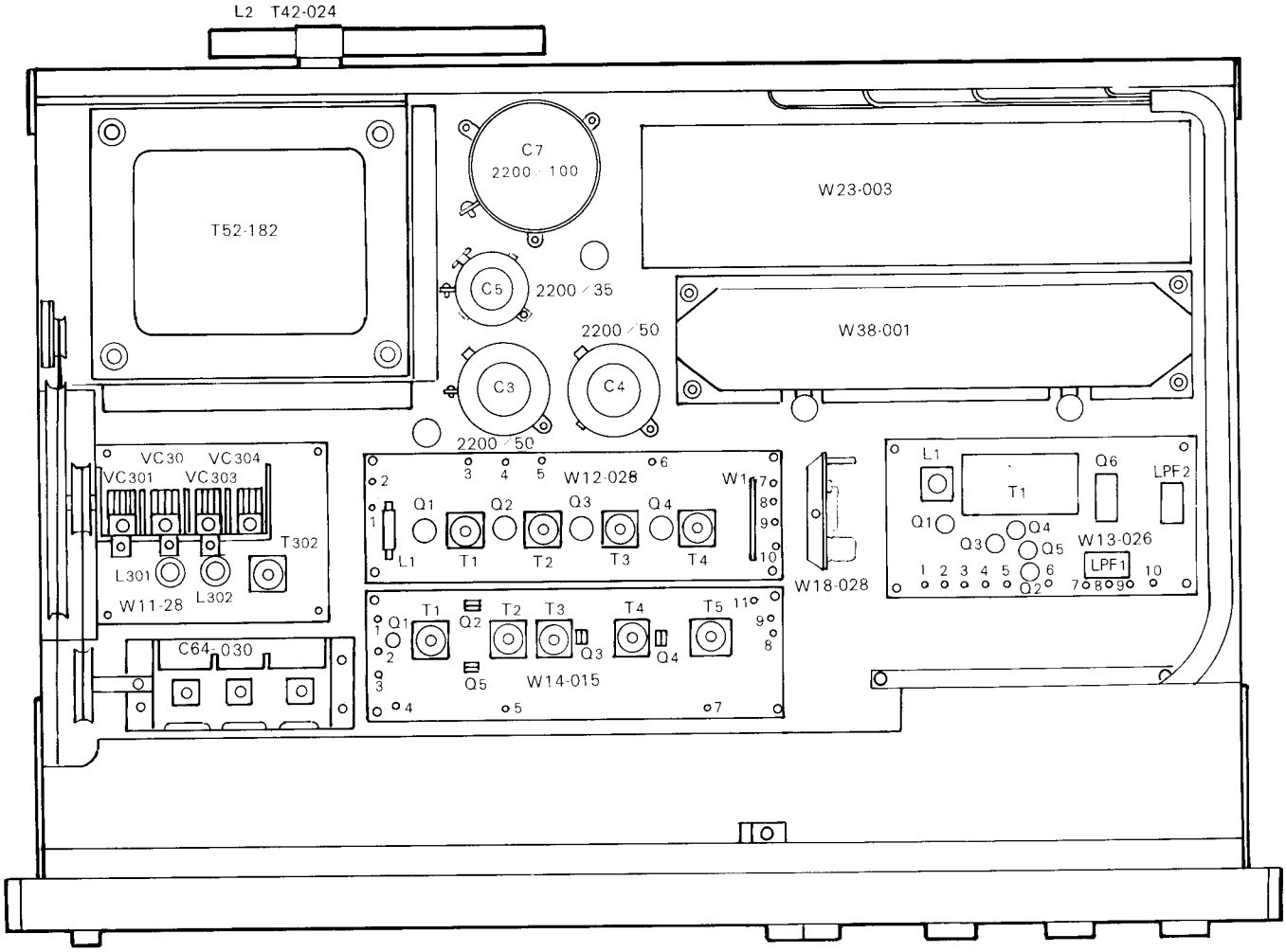
ALIGNMENT OF AM SECTION

*VTVM and oscilloscope should be connected in parallel at the output.
Position of Switch: SELECTOR.....MW
Volume Control Setting: Fully Counterclockwise

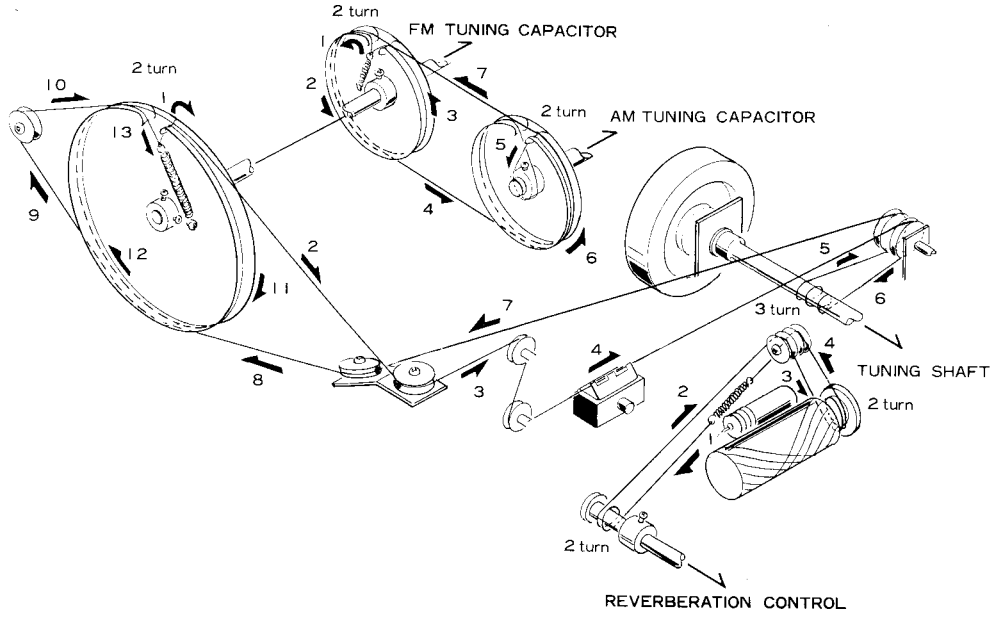
STEPS	Input			Dial Setting	Output Equipment Connections	Alignment	
	Equipment Connections	Frequency	Level			Adjust	Remarks
1	Sweep Generator 12	455kHz	60dB	Point of no interference as near as 1605kHz	VTVM Oscilloscope 8	T3 T4 T5	Adjust for maximum sensitivity and symmetrical characteristics.
2	Signal Generator Antenna Terminal through dummy	600kHz	30dB	600kHz	VTVM Oscilloscope 8	T2	Adjust for maximum defrection
3		1400kHz		1400kHz		CT3	
4	Repeat steps 2 and 3 several times.						
5	Signal Generator Antenna Terminal through dummy	600kHz	30dB	600kHz	VTVM Oscilloscope 8	T1, Ferrite Antenna (Adjusting core)	Adjust for maximum deflection.
6		1400kHz		1400kHz		CT1 CT2	
7	Repeat steps 5 and 6 several times.						

PARTS LAYOUT

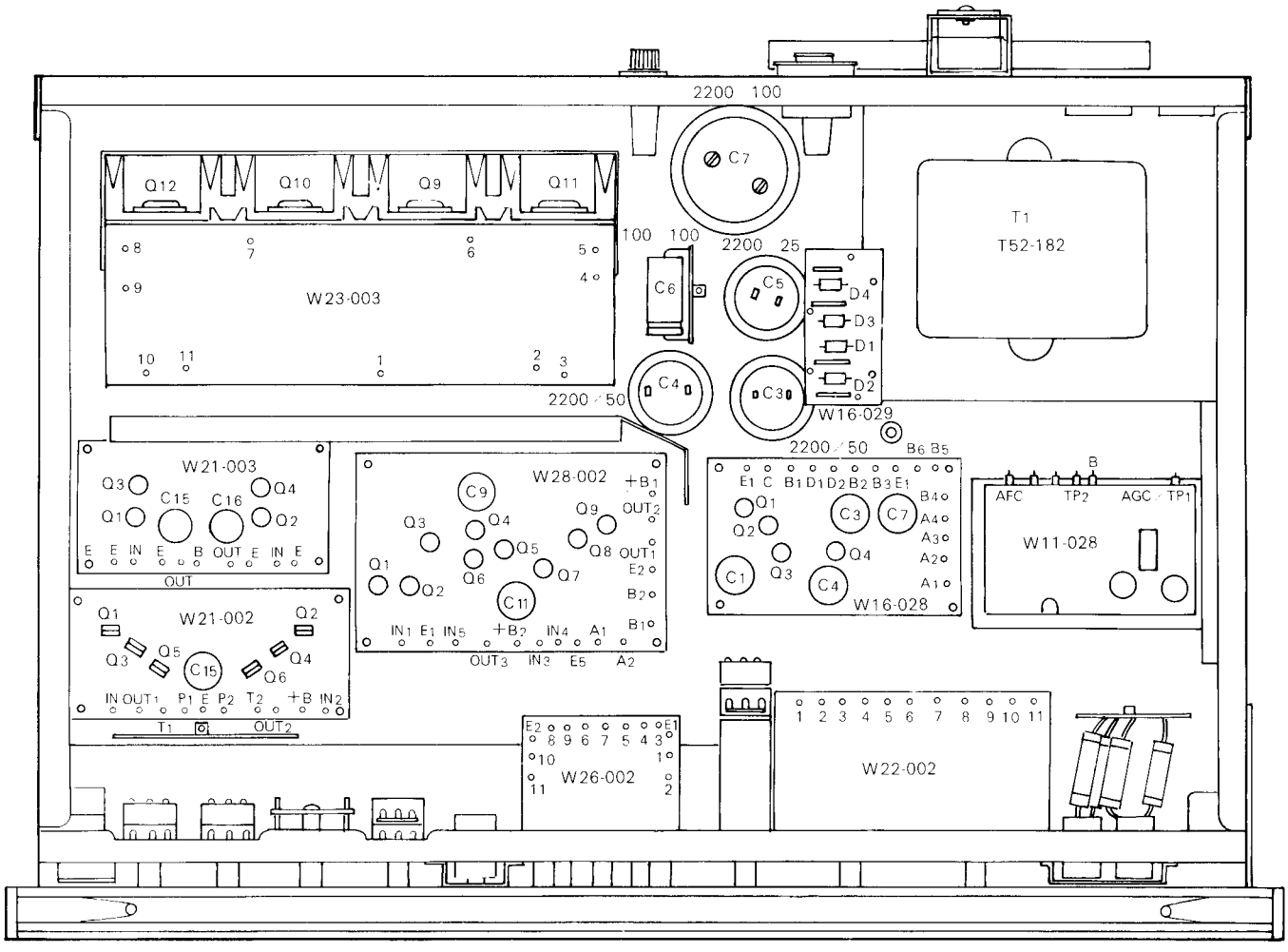
TOP VIEW



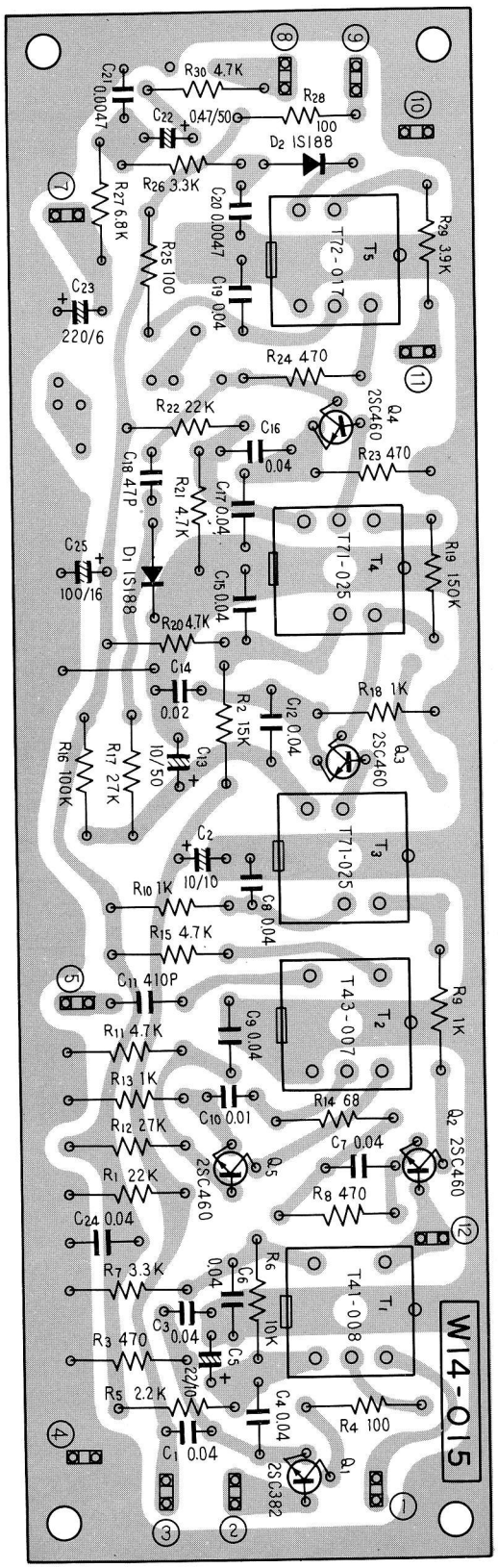
DIAL CORD STRINGING

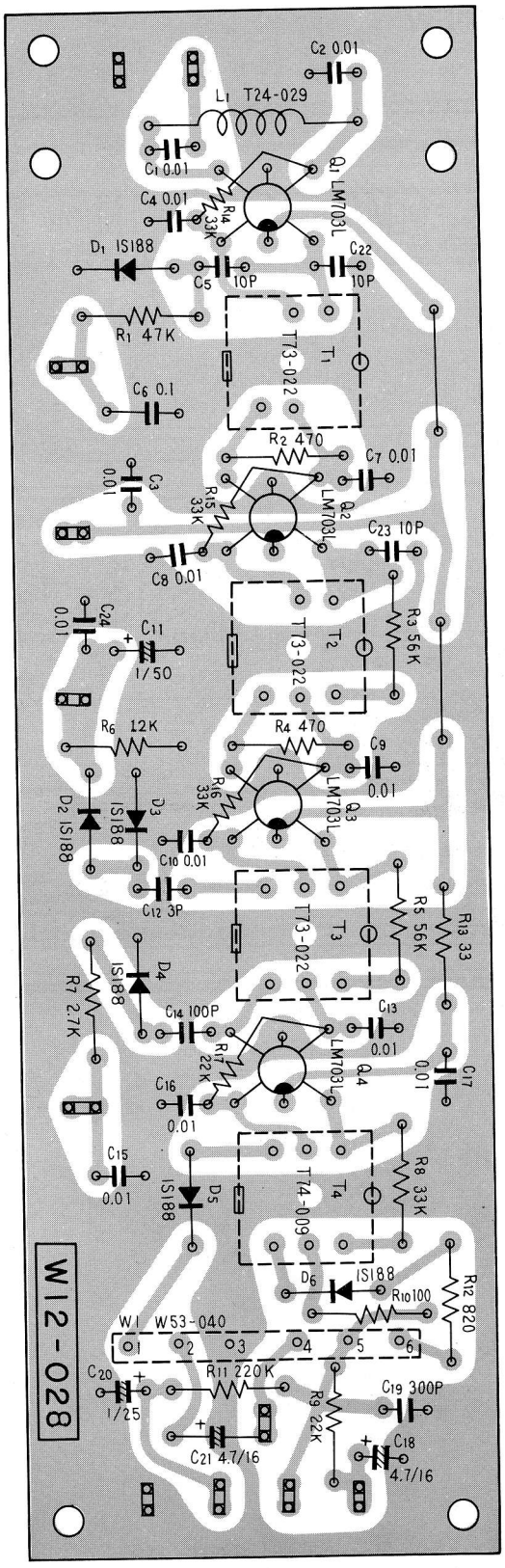


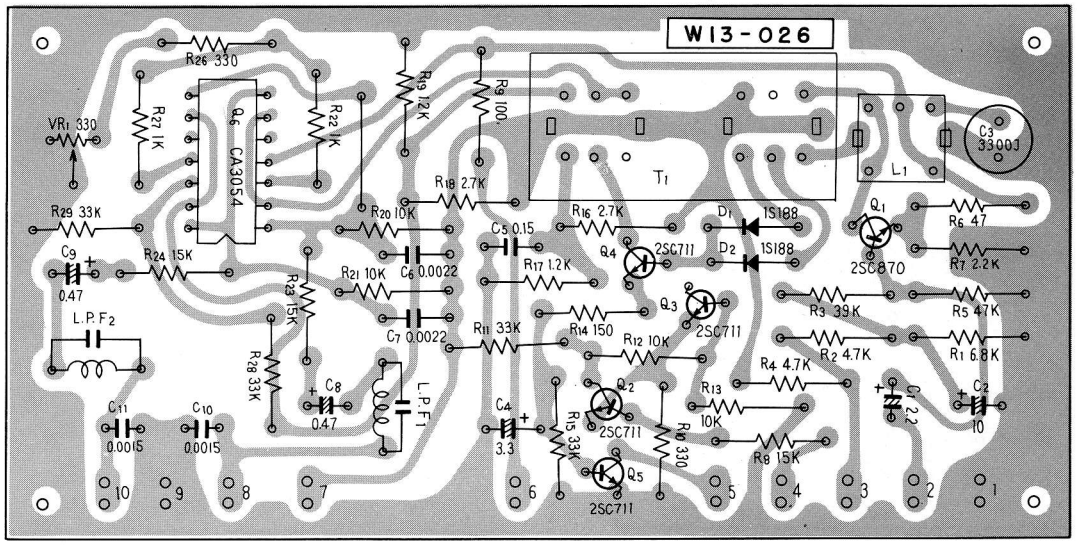
BOTTOM VIEW

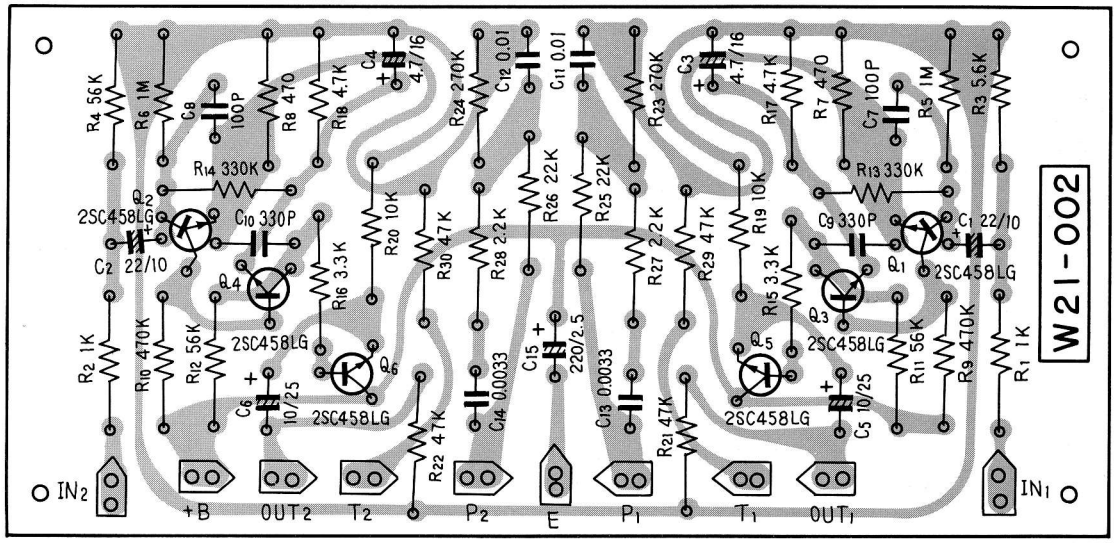

2200 100
C7
T1
T52-182
Q12
Q10
Q9
Q11
W23-003
100 100
2200 25
C6
C5
D4
D3
D1
D2
2200 50
C4
C3
W16-029
2200 50
B6 B5
W21-003
Q3
Q4
C15
C16
Q1
Q2
E E IN E B OUT E IN E
OUT
W28-002
+B1
C9
OUT2
Q9
Q3
Q4
Q5
Q8
OUT1
Q1
Q2
Q6
Q7
E2
B2
C11
IN1 E1 IN5 +B2 IN4 A1 B1
OUT3 IN3 E5 A2
E1 C B1 D1 D2 B2 B3 E1
Q1
Q2
C3
C7
B4
A4
A3
A2
A1
Q3
Q4
C1
C4
W16-028
B
AFC TP2 AGC TP1
W11-028
Q1
W21-002
Q2
Q3
Q5
C15
Q4
Q6
IN OUT1 P1 E P2 T2 +B IN2
T1
OUT2
E2 8 9 6 7 5 4 3 E1
10
1
11
2
W26-002
1 2 3 4 5 6 7 8 9 10 11
W22-002

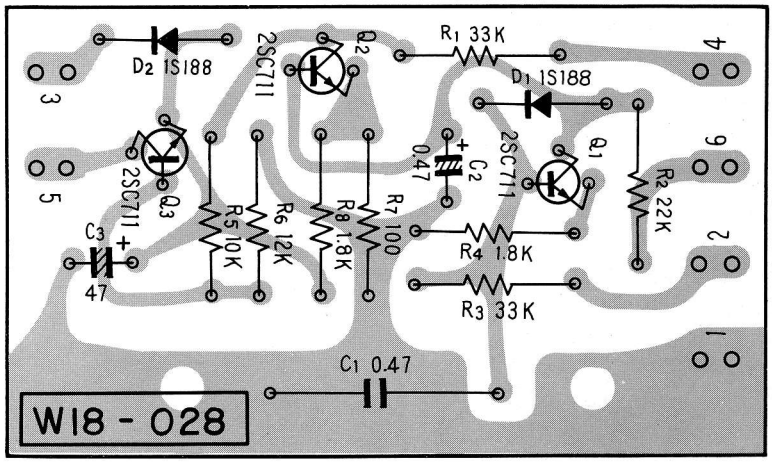
PRINTED CIRCUIT BOARDS

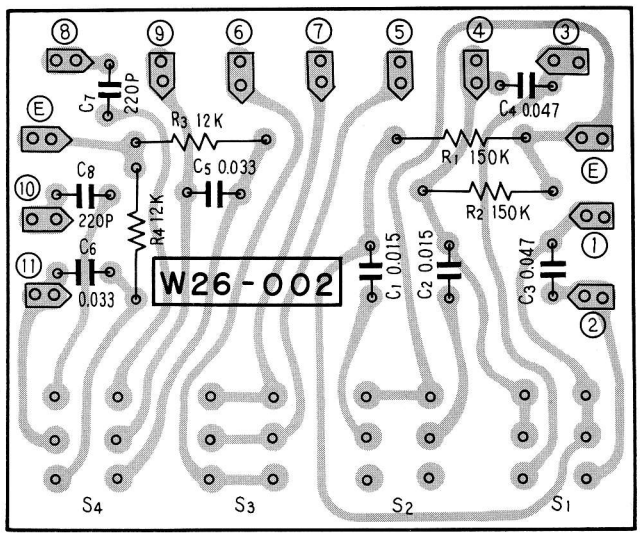


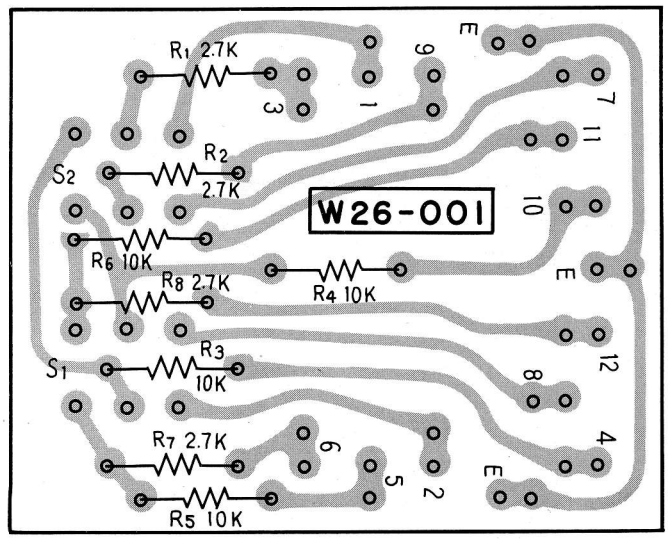


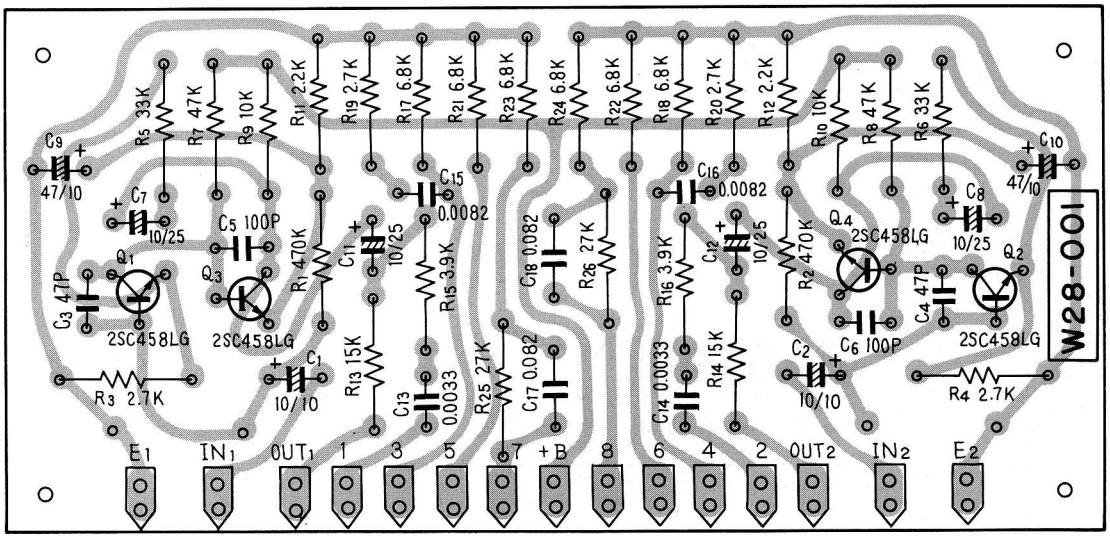

W13-026
R26 330
VR1 330
R27 1K
Q6 CA3054
R22 1K
R19 12K
R9 100
T1
L1
C3 3300J
R18 2.7K
R20 10K
C5 0.15
R16 2.7K
D1 1S188
Q1 2SC870
R6 47
R29 33K
C9 0.47
R24 15K
C6 0.0022
Q4 2SC711
D2 1S188
R7 2.2K
R23 15K
R21 10K
R17 1.2K
R3 39K
R5 47K
L.P.F2
C7 0.0022
Q3 2SC711
R14 150
R11 33K
R12 10K
R2 4.7K
R1 6.8K
R28 33K
C8 0.47
L.P.F1
R4 4.7K
C1 2.2
C11 0.0015
C10 0.0015
C4 3.3
R15 33K
Q2 2SC711
R13 10K
C2 10
R10 330
Q5 2SC711
R8 15K
10 9 8 7 6 5 4 3 2 1

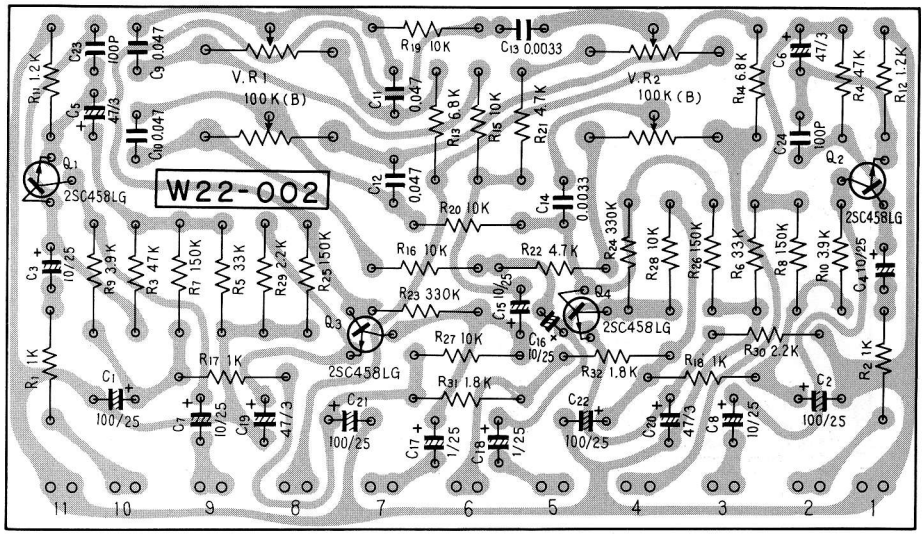

W21-002
R4 56K
R6 1M
C8 100P
R8 470
R18 4.7K
C4 4.7/16
R24 270K
C12 0.01
C11 0.01
R23 270K
C3 4.7/16
R17 4.7K
R7 470
C7 100P
R5 1M
R3 5.6K
R14 330K
R13 330K
Q2 2SC458LG
C10 330P
C9 330P
C1 22/10
C2 22/10
Q4 2SC458LG
R16 3.3K
R20 10K
R30 47K
R28 2.2K
R26 22K
R25 22K
R27 2.2K
R29 47K
R19 10K
R15 3.3K
Q1 2SC458LG
Q3 2SC458LG
R2 1K
R10 470K
R12 56K
Q6 2SC458LG
C15 220/2.5
Q5 2SC458LG
R11 56K
R9 470K
R1 1K
C6 10/25
C14 0.0033
C13 0.0033
C5 10/25
R22 4.7K
R21 47K
IN2
+B
OUT2
T2
P2
E
P1
T1
OUT1
IN1

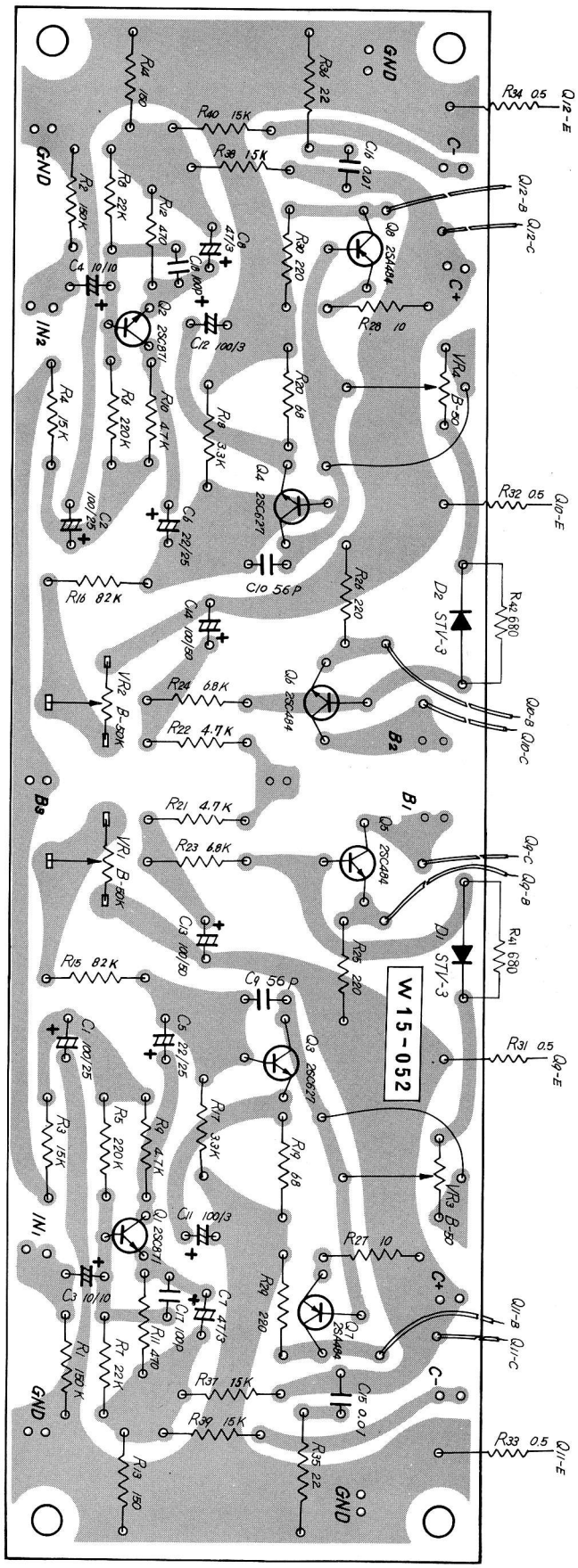

W18-028
D2 1S188
2SC711 Q2
R1 33K
D1 1S188
Q3 2SC711
C3 47
R5 10K
R6 12K
R8 1.8K
R7 100
C2 0.47
2SC711 Q1
R2 22K
R4 1.8K
R3 33K
C1 0.47
4 3 2 1 5 6

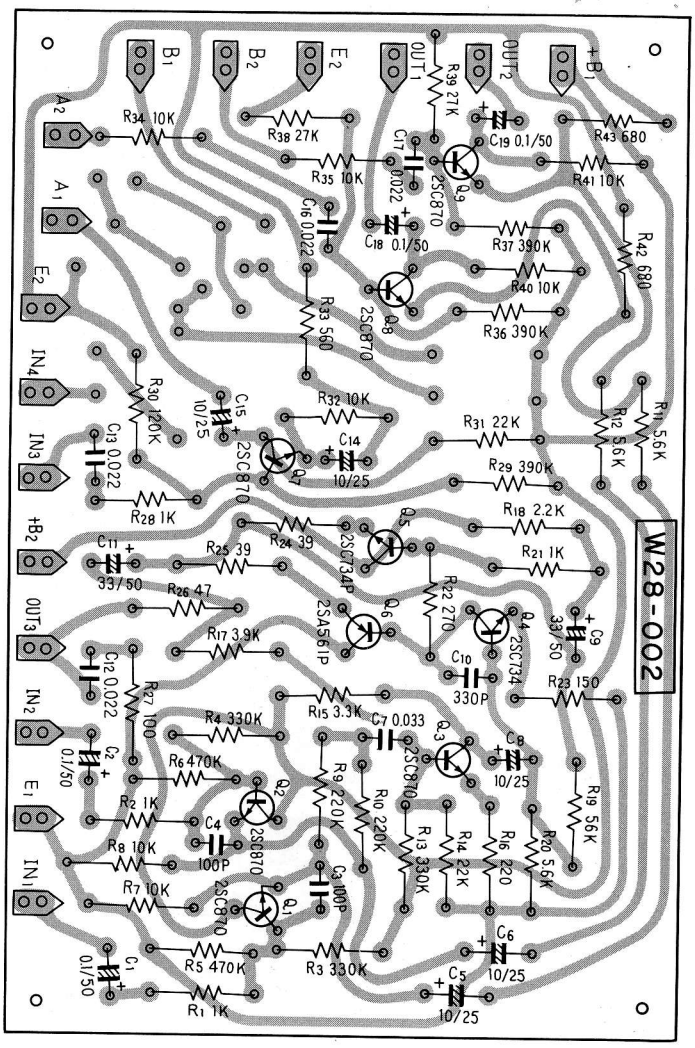

W26-002
S4
S3
S2
S1

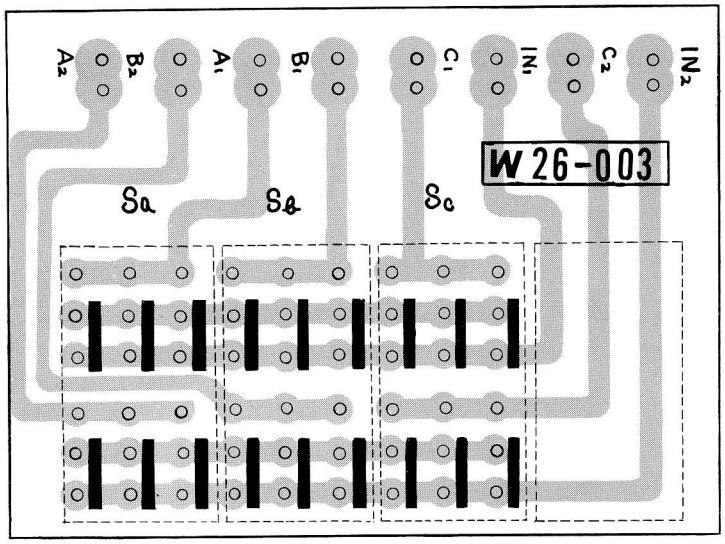

W26-001

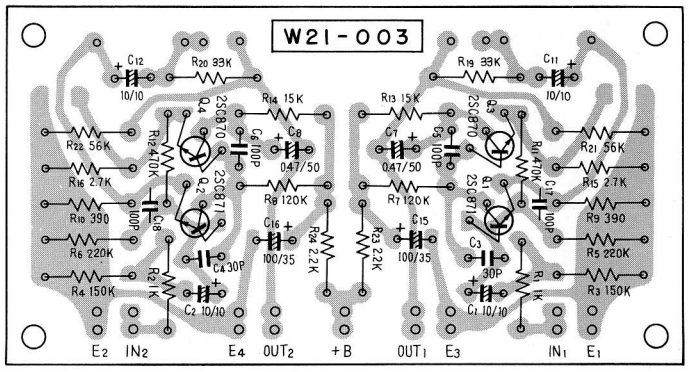

W28-001
2SC458LG
E1
IN1
OUT1
+B
OUT2
IN2
E2

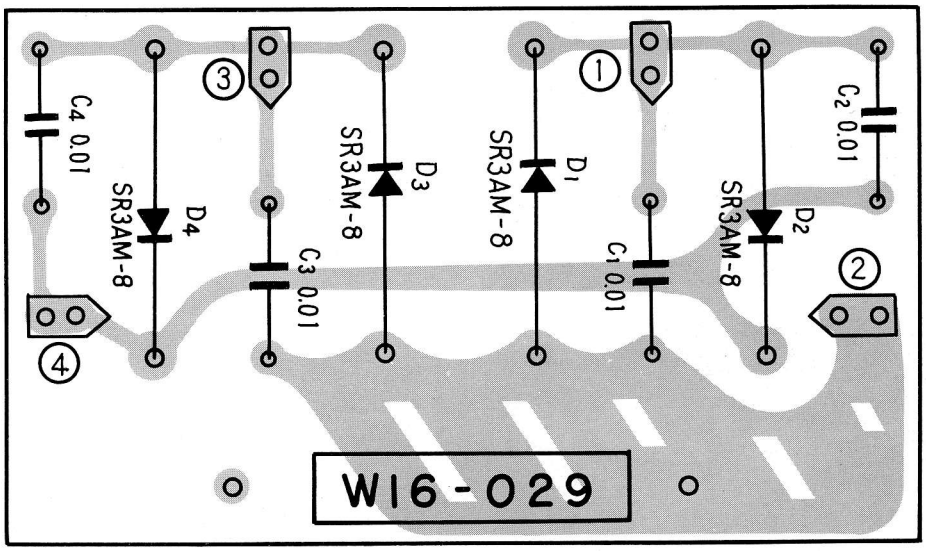

W22-002
2SC458LG

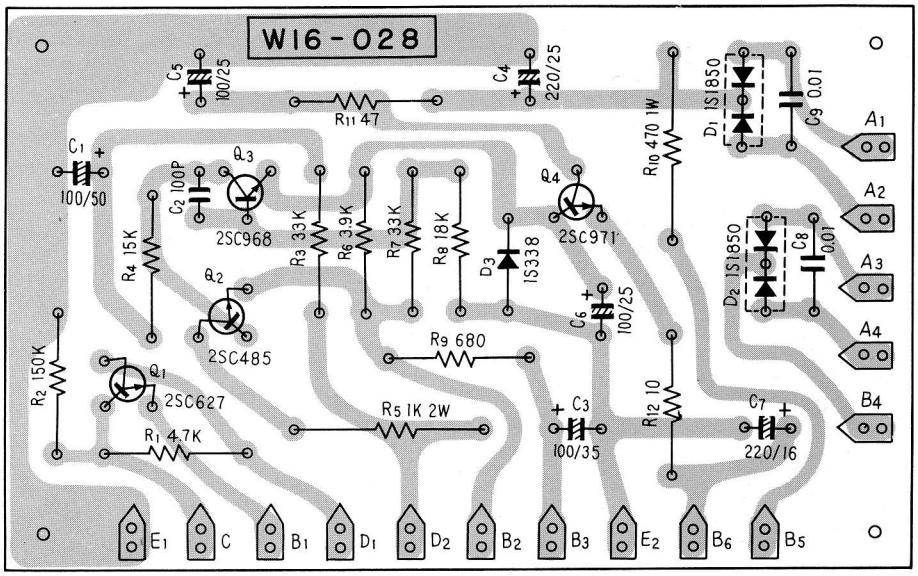

W15-052
GND
IN2
IN1
B3
B2
B1
C+
C-
Q12-E
Q12-B
Q12-C
Q10-E
Q10-B
Q10-C
Q9-C
Q9-B
Q9-E
Q11-B
Q11-C
Q11-E
D2 STV-3
D1 STV-3
VR4 B-50
VR2 B-50K
VR1 B-50K
VR3 B-50


W28-002
+B1
+B2
B1
B2
E2
OUT1
OUT2
OUT3
IN4
IN3
IN2
IN1
E1
A2
A1


W26-003
A2
B2
A1
B1
C1
IN1
C2
IN2
Sa
Sb
Sc


W21-003
E2
IN2
E4
OUT2
+B
OUT1
E3
IN1
E1


W16-029
C4 0.01
SR3AM-8
D4
D3
SR3AM-8
C3 0.01
D1
SR3AM-8
C1 0.01
D2
SR3AM-8
C2 0.01


W16-028
E1
C
B1
D1
D2
B2
B3
E2
B6
B5
A1
A2
A3
A4
B4

PARTS LIST

CAPACITORS

IN μF, 10%TOLERANCE UNLESS OTHERWISE NOTED P:μμF

Symbol	Description			Part No.
C1	Ceramic	0.01	50V	CKDYZ 103K 50
C2	Caramic	0.01	50V	CKDYZ 103K 50
C3	Electrolytic	2200	50V	C52-045-A
C4	Electrolytic	2200	50V	C52-045-A
C5	Electrolytic	2200	35V	C52-075-O
C6	Electrolytic	100	100V	CETG 100MF 100V
C7	Electrolytic	2200	100V	C52-076
C8	Ceramic	0.01	D.C 1.4KV	C43-003-O
C9	Ceramic	0.01	D.C 1.4KV	C43-003-O
C10	Ceramic	0.01	D.C 1.4KV	C43-003-O
C11	Ceramic	3p	50V	CCDSL 030C 50
C12	Mylar	2200p	50V	CQMA 222K 50
C13	Mylar	2200p	50V	CQMA 222K 50
C14	Electrolytic	220	35V	CETG 220MF 35V

RESISTORS

IN Ω, ¼W, 10%TOLERANCE UNLESS OTHERWISE NOTED
k:kΩ M:MΩ

Symbol	Description			Part No.
R1	Carbon film	150k		RF¼PS 150K-K NL
R2	Carbon film	150k		RF¼PS 150K-K NL
R3	Carbon film	2.2k		RF¼PS 2R2K-K
R4	Carbon film	56k		RF¼PS 56K-K
R5	Carbon film	56k		RF¼PS 56K-K
R6	Carbon film	47k		RF¼PS 47K-K NL
R7	Carbon film	47k		RF¼PS 47K-K NL
R8	Carbon film	56k		RF¼PS 56K-K NL
R9	Carbon film	56k		RF¼PS 56K-K NL
R10	Carbon film	56k		RF¼PS 56K-K NL
R11	Carbon film	56k		RF¼PS 56K-K NL
R12	Carbon film	4.7k		RF¼PS 4R7K-K NL
R13	Carbon film	4.7k		RF¼PS 4R7K-K NL
R14	Carbon film	3.3k		RF¼PS 3R3K-K NL
R15	Carbon film	82k		RF¼PS 82K-K
R16	Carbon film	82k		RF¼PS 82K-K
R17	Carbon film	1k		RF¼PS 1K-K
R18	Wire wound	150	3W	R03P 150-K
R19	Wire wound	150	3W	R03P 150-K
R20	Wire wound	150	3W	R03P 150-K
R21	Wire wound	150	3W	R03P 150-K
R22	Carbon film	56k		RF¼PS 56K-K NL
R23	Carbon film	2.7k		RF¼PS 2R7K-K NL
R24	Carbon film	8.2k		RF¼PS 8R2K-K
R25	Carbon film	56k		RF¼PS 56K-K
R26	Carbon film	33k		RF¼PS 33K-K NL
R27	Carbon film	33k		RF¼PS 33K-K NL
R28	Carbon film	4.7k		RF¼PS 4R7K-K NL
R29	Carbon film	4.7k		RF¼PS 4R7K-K NL
R30	Carbon film	2.2k		RF¼PS2R2K-K

COILS AND TRANSFORMER

Symbol	Description	Part No.
T1	Power Transformer	T52-182-O
L1	Choke Coil	T24-030-O
L2	AM-Ferrite Loopstick Antenna	T42-024-A
L3	Choke Coil	T24-025-B

SWITCHES

Symbol	Description	Part No.
S1	Input Selector	S13-038-A
S2	Mode Selector	S14-035-O
S3	Selector Switch	S15-035-A
S7	Slide Switch	S11-022-A
S8	Power Switch	S11-030-A
S9	Line Voltage Selector	S11-018-O

POTENTIOMETERS

Symbol	Description	Part No.
VR1	Volume Control(250k-A2)	C85-010-O
VR2	Volume Control with switch (50k-A2)	C85-056-O
VR3	Volume Control with switch (50k-A2)	C85-056-O
VR4	Volume Control (250k-A2)	C88-010-O
VR5	Volume Control with switch (50k-HB)	C85-055-O

COMPOUND PART

Symbol	Description	Part No.
	TAPE REC Terminal	W52-004-0

OTHER

Symbol	Description	Part No.
	AM Variable Capacitor	C64-030-O

MISCELLANEOUS

Symbol	Description	Part No.
	Front Panel Ass'y	M21-354-A
	Front Panel	M21-355-A
	Side Panel(R)	M21-356-O
	Side Panel(L)	M21-357-O
	Front Cover	M21-358-O
	Escutcheon	A61-217-A
	Dial Board	A62-055-B
	Shaft	B28-002-O
	Packing	E31-145-A
	Spring for Front Cover	B31-016-O
	Dial Pulley (Small)	M42-054-O
	Dial Pully for Reverberation Control	M42-053-A
	Dial Pulley for FM Tuning Capacitor	M42-027-D
	Dial Pully for AM and FM Tuning Capacitor	M42-021-C
	Dial Pulley	M42-009-B
	Foot	M61-017-O
	AM Ferrite Loopstick Antenna Ass'y	W72-002-B
	Pilot Lamp for Dial Board	E22-017-O
	Pilot lamp for Program Indicator	E22-018-A
	Pilot Lamp for Stereo Indicator	E22-029-O
	Pilot Lamp Ass'y for Dial Pointer	E22-031-O
	Pilot Lamp for Signal Meter (8V 150mA)	E22-002-O
	Pilot Lamp for Reverb (8V 250mA)	E22-026-O
	Pilot Lamp Ass'y for Tone Color	E22-030-B
	Fuse 1.5A	E21-012-O
	Fuse 3A	E21-006-O
	Dial Board for Tuning	A33-110-A
	Pulley for Reverberation	A59-051-O
	Lens for Pilot Lamp	A62-054-O
	Paper for Dial Pulley in Reverberation	A55-008-A

	Meter Escutcheon	A61-216-O
	Meter for Signal	A91-009-D
	Meter for FM Tuning	A91-008-D
	Lens for Program Indicator Lamp (RED)	A62-039-B
	Lens for Program Indicator Lamp (BLUE)	A62-040-B
	Lens for Program Indicator Lamp (GREEN)	A62-041-B
	Lens for Program Indicator Lamp (WHITE)	A62-042-B
	Lens for Program Indicator Lamp (PINK)	A62-043-B
	Knob for MODE	A12-203-B
	Knob for BASS, TREBLE, REVERB, BALANCE, MIC A, and MIC B	A12-195-B
	Knob for SELECTOR, TONE COLOR	A12-197-B
	Knob for TUNING	A12-196-A
	Knob for MASTER VOLUME	A13-020-B
	Knob for SOURCE VOLUME	A13-021-A
	Knob for POWER SWITCH	A19-038-O
	Knob for TAPE MONITOR A, TAPE MONITOR B (DEMI SWITCH)	A19-078-O
	Knob for LOW FILTER, HIGH FILTER, FM MUTING LOUDNESS	A19-077-O
	6p Input Terminal	K22-013-C
	4P Input Terminal	K21-010-D
	1P Input Terminal	K21-005-C
	4P Antenna Terminal	K11-018-O
	Spare A, C Outlet	K82-012-O
	Socket for Speaker	K73-028-O
	Jack for Headphone	K72-026-O
	Jack for Microphone	K72-024-O
	Socket for Pilot Lamp	K41-002-B
	Fuse holder (1p)	K91-005-A
	5P Connector (DIN type)	K93-003-B
	Fuse holder for Protection Circuit	K96-006-C
	Short Pin Plug	K71-028-O
	FM Front-end Unit	W11-028-D
	FM IF Unit	W12-028-O
	AM Tuner Unit	W14-015-A
	FM MPX Unit	W13-026-O
	Muting Unit	W18-028-A
	Head Amp Unit	W21-002-O
	Control Amp Unit	W22-002-O
	Main Amp Unit	W15-052-F
	MIC Amp Unit	W21-003-A
	Reverb Amp Unit	W28-002-O
	Tone Color Unit	W28-001-O
	Demi Switch Unit	W26-001-A
	Demi Switch Unit	W26-002-O
	Push Switch Unit	W26-003-O
	Power Supply Unit	W16-028-O
	Power Supply Unit	W16-029-O
	Reverberation Unit	W38-001-O

FM FRONT-END UNIT (W11-028)

CAPACITORS

Symbol	Description			Part No.
C1	Ceramic	1000p	25V	CKDYZ 102P 25
C3	Ceramic	6p	50V	CCDSL 060C 50
C4	Ceramic	1000p	500V	C47-005-A
C5	Ceramic	1000p	500V	C47-005-A
C6	Ceramic	10p	50V	CCDSL 100K 50
C7	Ceramic	10p	50V	CCDSL 100K 50
C8	Ceramic	10p	50V	CCDSL 100K 50
C9	Ceramic	5p	50V	CCDSL 050D 50
C10	Ceramic	100p	500V	C47-004-O
C11	Ceramic	1p	500V	C43-002-O
C12	Ceramic	1000p	500V	C47-005-A
C13	Ceramic	0.01	25V	CKDYZ 103P 25
C14	Ceramic	1000p	500V	C47-005-A
C15	Ceramic	5p	50V	CCDUJ 050D 50
C16	Ceramic	5p	50V	CCDSH 050D 50
C17	Ceramic	7p	50V	CCDTJ 070D 50
C18	Ceramic	1000p	500V	C47-005-A
C19	Ceramic	1000p	500V	C47-005-A
C20	Ceramic	1000p	500V	C47-005-A

RESISTORS

Symbol	Description			Part No.
R1	Carbon film	100k	1/8W	RF1/8PS 100K-K
R2	Carbon film	1M	1/8W	RF1/8PS 1M-K
R3	Carbon film	220	1/8W	RF1/8PS 220K
R4	Carbon film	3.9k	1/8W	RF1/8PS 3R9K-K
R5	Carbon film	22k	1/8W	RF1/8PS 22K-K
R6	Carbon film	1k	1/8W	RF1/8PS 1K-K
R7	Carbon film	220	1/8W	RF1/8PS 220 K
R8	Carbon film	8.2k	1/8W	RF1/8PS 8R2K-K
R9	Carbon film	2.2k	1/8W	RF1/8PS 2R2K-K
R10	Carbon film	1.5k	1/8W	RF1/8PS 1R5K-K
R11	Carbon film	22k	1/8W	RF1/8PS 22K K
R12	Carbon film	22k	1/8W	RF1/8PS 22K K
R13	Carbon film	3.3k	1/8W	RF1/8PS 3R3K-K

COILS

Symbol	Description	Part No.
L1	RF Coil	T21-013-B
L2	RF Coil	T23-026-D
L5	OSC Coil	T23-032-B

SEMICONDUCTORS

Symbol	Description		Part No.
D1	1S85	Diode	
Q1	3SK22-Y	Transistor	
Q2	2SC461-B	Transistor	
Q3	2SC461-A	Transistor	

FM IF UNIT (W12-028)

CAPACITORS

Symbol	Description			Part No.
C1	Ceramic	0.01	25V	CKDYZ 103P 25
C2	Ceramic	0.01	25V	CKDYZ 103P 25
C3	Ceramic	0.01	25V	CKDYZ 103P 25
C4	Ceramic	0.01	25V	CKDYZ 103P 25
C5	Ceramic	10p	50V	CCDSL 100K 50
C6	Mylar	0.1	50V	CQMA 104M 50
C7	Ceramic	0.01	25V	CKDYZ 103P 25
C8	Ceramic	0.01	25V	CKDYZ 103P 25
C9	Ceramic	0.01	25V	CKDYZ 103P 25
C10	Ceramic	0.01	25V	CKDYZ 103P 25
C11	Electrolytic	1	50V	CEMX 1MF 50V
C12	Ceramic	3p	50V	CCDSL 030C 50
C13	Ceramic	0.01	25V	CKDYZ 103P 25
C14	Ceramic	100p	50V	CCDSL 101K 50
C15	Ceramic	0.01	25V	CKDYZ 103P 25
C16	Ceramic	0.01	25V	CKDYZ 103P 25
C17	Ceramic	0.01	25V	CKDYZ 103P 25

C18	Electrolytic	4.7	16V	CEMX 4R7MF 16V
C19	Ceramic	300p	50V	CCDSL 301K 50
C20	Electrolytic	1	25V	CEMX 1MF 25V
C21	Electrolytic	4.7	16V	CEMX 4R7MF 16V
C22	Ceramic	10p	50V	CCDSL 100K 50
C23	Ceramic	10p	50V	CCDSL 100K 50
C24	Ceramic	0.01	25V	CKDYZ 103P 25

RESISTORS

Symbol	Description		Part No.
R1	Carbon film	47k	RF¼PS 47K-K
R2	Carbon film	470	RF¼PS 470-K
R3	Carbon film	56k	RF¼PS 56K-K
R4	Carbon film	470	RF¼PS 470-K
R5	Carbon film	56k	RF¼PS 56K-K
R6	Carbon film	12k	RF¼PS 12K-K
R7	Carbon film	2.7k	RF¼PS 2R7K-K
R8	Carbon film	33k	RF¼PS 33K-K
R9	Carbon film	22k	RF¼PS 22K-K
R10	Carbon film	100	RF¼PS 100-K
R11	Carbon film	220k	RF¼PS 220K-K
R12	Carbon film	820	RF¼PS 820-K
R13	Carbon film	150	RF¼PS 150-K

COILS AND TRANSFORMER

Symbol	Description	Part No.
T1	FM IFT	T73-022-O
T2	FM IFT	T73-022-O
T3	FM IFT	T73-022-O
T4	FM DET IFT	T74-009-O
L1	RF Choke Coil	T24-029-A

SEMICONDUCTORS

Symbol	Description		Part No.
D1	1S188 or FM-1	Diode	
D2	1S188 or FM-1	Diode	
D3	1S188 or FM-1	Diode	
D4	1S188 or FM-1	Diode	
D5	1S188 or FM-1	Diode	
D6	1S188 or FM-1	Diode	
Q1	LM703L-BL	IC	
Q2	LM703L-BL	IC	
Q3	LM703L-BL	IC	
Q4	LM703L-BL	IC	

MUTING UNIT (W18-028)
CAPACITORS

Symbol	Description			Part No.
C1	Mylar	0.47	50V	CQMA 474K 50
C2	Electrolytic	0.47	50V	CEMX R47MF 50V
C3	Electrolytic	47	25V	CEMX 47MF 25V

RESISTORS

Symbol	Description		Part No.
R1	Carbon film	33k	RF¼PS 33K-K
R2	Carbon film	22k	RF¼PS 22K-K
R3	Carbon film	33k	RF¼PS 33K-K
R4	Carbon film	1.8k	RF¼PS 1R8K-K
R5	Carbon film	10k	RF¼PS 10K-K
R6	Carbon film	12k	RF¼PS 12K-K
R7	Carbon film	100	RF¼PS 100-K
R8	Carbon film	1.8k	RF¼PS 1R8K-K

SEMICONDUCTORS

Symbol	Description		Part No.
D1	1S188 or FM-1	Diode	
D2	1S188 or FM-1	Diode	
Q1	2SC711	Transistor	
Q2	2SC711	Transistor	
Q3	2SC711	Transistor	

MIC AMP UNIT (W21-003)
CAPACITORS

Symbol	Description			Part No.
C1	Electrolytic	10	10V	CEMX 10MF 10V
C2	Electrolytic	10	10V	CEMX 10MF 10V
C3	Ceramic	30p	50V	CCDSL 300K 50V
C4	Ceramic	30p	50V	CCDSL 300K 50
C5	Ceramic	100p	50V	CCDSL 101K 50
C6	Ceramic	100p	50V	CCDSL 101K 50
C7	Electrolytic	0.47	50V	CEMX B47MF 50V
C8	Electrolytic	0.47	50V	CEMX R47MF 50V
C11	Electrolytic	10	10V	CEMX 10MF 10V
C12	Electrolytic	10	10V	CEMX 10MF 10V
C15	Electrolytic	100	35V	CEMX 100MF35V
C16	Electrolytic	100	35V	CEMX 100MF 35V

RESISTORS

Symbol	Description		Part No.
R1	Carbon film	1k	RF¼PS 1K-K
R2	Carbon film	1k	RF¼PS 1K-K
R3	Carbon film	150k	RF¼PS 150K-K
R4	Carbon film	150k	RF¼PS 150K-K
R5	Carbon film	220k	RF¼PS 220K-K
R6	Carbon film	220k	RF¼PS 220K-K
R7	Carbon film	120k	RF¼PS 120K-K
R8	Carbon film	120k	RF¼PS 120K-K

R 9	Carbon film	390			RF¼PS 390-K
R10	Carbon film	390			RF¼PS 390-K
R11	Carbon film	470k			RF¼PS 470K-K
R12	Carbon film	470k			RF¼PS 470K-K
R13	Carbon film	15k			RF¼PS 15K-K
R14	Carbon film	15k			RF¼PS 15K-K
R15	Carbon film	2.7k			RF¼PS 2R7K-K
R16	Carbon film	2.7k			RF¼PS 2R7K-K
R19	Carbon film	33k			RF¼PS 33K-K
R10	Carbon film	33k			RF¼PS 33K-K
R11	Carbon film	56k			RF¼PS 56K-K
R22	Carbon film	56k			RF¼PS 56K-K
R23	Carbon film	2.2k			RF¼PS 2R2K-K
R24	Carbon film	2.2k			RF¼PS 2R2K-K

TRANSISTORS

Symbol	Description	Part No.
Q1	2SC871-GR	
Q2	2SC871-GR	
Q3	2SC870	
Q4	2SC870	

MPX UNIT (W13-026)
CAPACITORS

Symbol	Description				Part No.
C1	Electrolytic	2.2		50V	CEMX 2R2MF 50V
C2	Electrolytic	10		10V	CEMX 10MF 10V
C3	Styrol	3300p			C15-011
C4	Electrolytic	3.3		25V	CEMX 3R3MF 25V
C5	Mylar	0.15		50V	CQMA 154K 50
C6	Mylar	2200p		50V	CQMA 222K 50
C7	Mylar	2200p		50V	CQMA 222K 50
C8	Electrolytic	0.47		50V	CEMX R47MF 50V
C9	Electrolytic	0.47		50V	CEMX R47MF 50V
C10	Mylar	1500p		50V	CQMA 152K 50
C11	Mylar	1500p		50V	CQMA 152K 50
C12	Ceramic	300p		50V	CCDSL 301K 50

RESISTORS

Symbol	Description				Part No.
R1	Carbon film	6.8k			RF¼PS 6R8K-K
R2	Carbon film	4.7k			RF¼PS 4R7K-K
R3	Carbon film	39k			RF¼PS 39K-K
R4	Carbon film	4.7k			RF¼PS 4R7K-K
R5	Carbon film	47k			RF¼PS 47K-K
R6	Carbon film	47			RF¼PS 47-K
R7	Carbon film	2.2k			RF¼PS 2R2K-K
R8	Carbon film	15k			RF¼PS 15K-K
R9	Carbon film	100			RF¼PS 100-K
R10	Carbon film	330			RF¼PS 330-K
R11	Carbon film	33k			RF¼PS 33K-K
R12	Carbon film	10k			RF¼PS 10K-K
R13	Carbon film	10k			RF¼PS 10K-K
R14	Carbon film	150			RF¼PS 150-K
R15	Carbon film	33k			RF¼PS 33K-K
R16	Carbon film	2.7k			RF¼PS 2R7K-K
R17	Carbon film	1.2k			RF¼PS 1R2K-K
R18	Carbon film	2.7k			RF¼PS 2R7K-K
R19	Carbon film	1.2k			RF¼PS 1R2K-K
R20	Carbon film	10k			RF¼PS 10K-K
R21	Carbon film	10k			RF¼PS 10K-K
R22	Carbon film	1k			RF¼PS 1K-K
R23	Carbon film	15k			RF¼PS 15K-K
R24	Carbon film	15k			RF¼PS 15K-K
R26	Carbon film	330			RF¼PS 330-K
R27	Carbon film	1k			RF¼PS 1K-K
R28	Carbon film	33k			RF¼PS 33K-K
R29	Carbon film	33k			RF¼PS 33K-K

COILS AND TRANSFORMER

Symbol	Description	Part No.
L1	19kHz Coil	T75-023-O
T1	MPX Transformer	T75-026-O
LPF1	38kHz Filter	T75-015-A
LPF2	38kHz Filter	T75-015 A

DIODES AND TRANSISTORS

Symbol	Description	Part No.
D1	1S188 or FM-1 Diode	
D2	1S188 or FM-1 Diode	
Q1	2SC870-F Transistor	
Q2	2SC711-F Transistor	
Q3	2SC711-F Transistor	
Q4	2SC711-F Transistor	
Q5	2SC711-F Transistor	
Q6	CA3054 IC	

AM UNIT (W14-015)
CAPACITORS

Symbol	Description				Part No.
C1	Ceramic	0.04		25V	CKDYZ 403P 25
C2	Electrolytic	10		10V	CEMX 10MF 10V
C3	Ceramic	0.04		25V	CKDYZ 403P 25
C4	Ceramic	0.04		25V	CKDYZ 403P 25
C5	Electrolytic	22		10V	CEMX 22MF 10V
C6	Ceramic	0.04		25V	CKDYZ 403P 25
C7	Ceramic	0.04		25V	CKDYZ 403P 25
C8	Ceramic	0.04		25V	CKDYZ 403P 25
C9	Ceramic	0.04		25V	CKDYZ 403P 25
C10	Mylar	0.01		50V	CQMA 103K 50
C11	Mylar	410p		50V	CQSA 411K 50
C12	Ceramic	0.04		25V	CKDYZ 403P 25
C13	Electrolytic	10		50V	CEMX 10MF 50V
C14	Ceramic	0.02		25	CKDYZ 203P 25
C15	Ceramic	0.04		25V	CKDYZ 403P 25
C16	Ceramic	0.04		25V	CKDYZ 403P 25
C17	Ceramic	0.04		25V	CKDYZ 403P 25
C18	Ceramic	47p		50V	CCDSL 470K 50
C19	Ceramic	0.04		25V	CKDYZ 403P 25
C20	Mylar	4700p		50V	CQMA 472K 50
C21	Mylar	4700p		50V	CQMA 472K 50
C22	Electrolytic	0.47		50V	CEMX R47MF 50V
C23	Electrolytic	220		6V	CEMX 220MF 6V
C24	Ceramic	0.04		25V	CKDYZ 403P 25
C25	Electrolytic	100		16V	CEMX 100MF 16V

RESISTORS

Symbol	Description		Part No.
R1	Carbon film	22k	RF¼PS 22K-K
R2	Carbon film	15k	RF¼PS 15K-K
R3	Carbon film	470	RF¼PS 470-K
R4	Carbon film	100	RF¼PS 100-K
R5	Carbon film	2.2k	RF¼PS 2R2K-K
R6	Carbon film	10k	RF¼PS 10K-K
R7	Carbon film	3.3k	RF¼PS 3R3K-K
R8	Carbon film	470	RF¼PS 470-K
R9	Carbon film	1k	RF¼PS 1K-K
R10	Carbon film	1k	RF¼PS 1K-K
R11	Carbon film	4.7k	RF¼PS 4R7K-K
R12	Carbon film	27k	RF¼PS 27K-K
R13	Carbon film	1K	RF¼PS 1K-K
R14	Carbon film	68	RF¼PS 68-K
R15	Carbon film	4.7k	RF¼PS 4R7K-K
R16	Carbon film	100k	RF¼PS 100K-K
R17	Carbon film	27k	RF¼PS 27K-K
R18	Carbon film	1k	RF¼PS 1K-K
R19	Carbon film	150k	RF¼PS 150K-K
R20	Carbon film	4.7k	RF¼PS 4R7K-K
R21	Carbon film	4.7k	RF¼PS 4R7K
R22	Carbon film	22k	RF¼PS 22K-K
R23	Carbon film	470	RF¼PS 470-K
R24	Carbon film	470	RF¼PS 470-
R25	Carbon film	100	RF¼PS 100-
R26	Carbon film	3.3k	RF¼PS 3R3K
R27	Carbon film	6.8k	RF¼PS 6R8K
R28	Carbon film	100	RF¼PS 100-K
R29	Carbon film	3.9k	RF¼PS 3R9K
R30	Carbon film	4.7k	RF¼PS 4R7K-K

COILS AND TRANSFORMERS

Symbol	Description	Part No.
T1	MW RF COIL	T41-008
T2	MW OSC COIL	T43-007
T3	AM IFT	T41-025
T4	AM IFT	T71-025
T5	AM DET IFT	T72-017

SEMICONDUCTORS

Symbol	Description		Part No.
D1	1S188 or FM-1	Diode	
D2	1S188 or FM-1	Diode	
Q1	2SC382	Transistor	
Q2	2SC460-B	Transistor	
Q3	2SC460-B	Transistor	
Q4	2SC460-B	Transistor	
Q5	2SC460-B	Transistor	

HEAD AMP UNIT (W21-002)

CAPACITORS

Symbol	Description			Part No.
C1	Electrolytic	22	10V	CEMX 22MF 10V
C2	Electrolytic	22	10V	CEMX 22MF 10V
C3	Electrolytic	4.7	16V	CEMX 4R7MF 16V
C4	Electrolytic	4.7	16V	CEMX 4R7MF 16V
C5	Electrolytic	10	25V	CEMX 10MF 25V
C6	Electrolytic	10	25V	CEMX 10MF 25V
C7	Ceramic	100p	50V	CCDSL 101K 50
C8	Ceramic	100p	50V	CCDSL 101K 50
C9	Ceramic	330p	50V	CCDSL 331K 50
C10	Ceramic	330p	50V	CCDSL 331K 50
C11	Mylar	0.01	50V	CQMA 103K 50
C12	Mylar	0.01	50V	CQMA 103K 50
C13	Mylar	3300p	50V	CQMA 332K 50
C14	Mylar	3300p	50V	CQMA 332K 50
C15	Electrolytic	220	25V	CEMX 220MF 25V

RESISTORS

Symbol	Description		Part No.
R1	Carbon film	1k	RF¼PS 1K-K
R2	Carbon film	1k	RF¼PS 1K-K
R3	Carbon film	56k	RF¼PS 56K-K
R4	Carbon film	56k	RF¼PS 56K-K
R5	Carbon film	1M	RF¼PS 1M-K
R6	Carbon film	1M	RF¼PS 1M-K
R7	Carbon film	390	RF¼PS 390-K
R8	Carbon film	390	RF¼PS 390-K
R9	Carbon film	470k	RF¼PS 470K-K
R10	Carbon film	470k	RF¼PS 470K-K
R11	Carbon film	56k	RF¼PS 56K-K
R12	Carbon film	56k	RF¼PS 56K-K
R13	Carbon film	330k	RF¼PS 330K-K
R14	Carbon film	330k	RF¼PS 330K-K
R15	Carbon film	3.3k	RF¼PS 3R3K-K
R16	Carbon film	3.3k	RF¼PS 3R3K-K
R17	Carbon film	4.7k	RF¼PS 4R7K-K
R18	Carbon film	4.7k	RF¼PS 4R7K-K
R19	Carbon film	10k	RF¼PS 10K-K
R20	Carbon film	10k	RF¼PS 10K-K
R21	Carbon film	47k	RF¼PS 47K-K
R22	Carbon film	47k	RF¼PS 47K-K
R23	Carbon film	270k	RF¼PS 270K-K
R24	Carbon film	270k	RF¼PS 270K-K
R25	Carbon film	22k	RF¼PS 22K-K
R26	Carbon film	22k	RF¼PS 22K-K
R27	Carbon film	2.2k	RF¼PS 2R2K-K
R28	Carbon film	2.2k	RF¼PS 2R2K-K
R29	Carbon film	12k	RF¼PS 12K-K
R30	Carbon film	12k	RF¼PS 12K-K

TRANSISTORS

Symbol	Description	Part No.
Q1	2SC458LG-B	
Q2	2SC458LG-B	
Q3	2SC458LG-B	
Q4	2SC458LG-B	
Q5	2SC458LG-B	
Q6	2SC458LG-B	

DEMI SWITCH UNIT (W26-001)
RESISTORS

Symbol	Description		Part No.
R_1	Carbon film	10k	RF¼PS 10K-K
R_2	Carbon film	10k	RF¼PS 10K-K
R_3	Carbon film	10k	RF¼PS 10K-K
R_4	Carbon film	10k	RF¼PS 10K-K

SWITCH

Symbol	Description	Part No.
S_1	Demi Switch	S31-029

DEMI SWITCH UNIT (W26-002)
CAPACITORS

Symbol	Description			Part No.
C_1	Mylar	0.015	50V	CQMA 153K 50
C_2	Mylar	0.015	50V	CQMA 153K 50
C_3	Mylar	0.047	50V	CQMA 473K 50
C_4	Mylar	0.047	50V	CQMA 473K 50
C_5	Mylar	0.033	50V	CQMA 333K 50
C_6	Mylar	0.033	50V	CQMA 333K 50
C_7	Ceramic	220p	50V	CCDSL 221K 50
C_8	Ceramic	220p	50V	CCDSL 221K 50

RESISTORS

Symbol	Description		Part No.
R_1	Carbon film	150k	RF¼PS 150K-K
R_2	Carbon film	150k	RF¼PS 150K-K
R_3	Carbon film	12k	RF¼PS 12K-K
R_4	Carbon film	12k	RF¼PS 12K-K

SWITCH

Symbol	Description	Part No.
S_1	Demi Switch	S31-016-A

TONE COLOR UNIT (W28-001)
CAPACITORS

Symbol	Description			Part No.
C_1	Electrolytic	10	10V	CEMX 10MF 10V
C_2	Electrolytic	10	10V	CEMX 10MF 10V
C_3	Ceramic	47p	50V	CCDSL 470K 50
C_4	Ceramic	47p	50V	CCDSL 470K 50
C_5	Ceramic	100p	50V	CCDSL 101K 50
C_6	Ceramic	100p	50V	CCDSL 101K 50
C_7	Electrolytic	10	25V	CEMX 10MF 25V
C_8	Electrolytic	10	25V	CEMX 10MF 25V
C_9	Electrolytic	47	10V	CEMF 47MF 10V
C_{10}	Electrolytic	47	10V	CEMX 47MF 10V
C_{11}	Electrolytic	10	25V	CEMX 10MF 25V
C_{12}	Electrolytic	10	25V	CEMX 10MF 25V
C_{13}	Mylar	3300p	50V	CQMA 332K 50
C_{14}	Mylar	3300p	50V	CQMA 332K 50
C_{15}	Mylar	8200p	50V	CQMA 822K 50
C_{16}	Mylar	8200p	50V	CQMA 822K 50
C_{17}	Mylar	0.082	50V	CQMA 823K 50
C_{18}	Mylar	0.082	50V	CQMA 823K 50

RESISTORS

Symbol	Description		Part No.
R_1	Carbon film	470k	RF¼PS 470K-K
R_2	Carbon film	470k	RF¼PS 470K-K
R_3	Carbon film	2.7k	RF¼PS 2R7K-K
R_4	Carbon film	2.7k	RF¼PS 2R7K-K
R_5	Carbon film	33k	RF¼PS 33K-K
R_6	Carbon film	33k	RF¼PS 33K-K
R_7	Carbon film	47k	RF¼PS 47K-K
R_8	Carbon film	47k	RF¼PS 47K-K
R_9	Carbon film	10k	RF¼PS 10K-K
R_{10}	Carbon film	10k	RF¼PS 10K-K
R_{11}	Carbon film	2.2k	RF¼PS 2R2K-K
R_{12}	Carbon film	2.2k	RF¼PS 2R2K-K
R_{13}	Carbon film	15k	RF¼PS 15K-K
R_{14}	Carbon film	15k	RF¼PS 15K-K
R_{15}	Carbon film	3.9k	RF¼PS 3R9K-K
R_{16}	Carbon film	3.9k	RF¼PS 3R9K-K
R_{17}	Carbon film	6.8k	RF¼PS 6R8K-K
R_{18}	Carbon film	6.8k	RF¼PS 6R8K-K
R_{19}	Carbon film	2.7k	RF¼PS 2R7K-K
R_{20}	Carbon film	2.7k	RF¼PS 2R7K-K
R_{21}	Carbon film	6.8k	RF¼PS 6R8K-K
R_{22}	Carbon film	6.8k	RF¼PS 6R8K-K
R_{23}	Carbon film	6.8k	RF¼PS 6R8K-K
R_{24}	Carbon film	6.8k	RF¼PS 6R8K-K

TRANSISTORS

Symbol	Description	Part No.
Q_1	2SC458LG-B	
Q_2	2SC458LG-B	
Q_3	2SC458LG-B	
Q_4	2SC458LG-B	

CONTROL AMP UNIT (W22-002)
CAPACITORS

Symbol	Description			Part No.
C_1	Electrolytic	100	25V	CEMX 100M 25V
C_2	Electrolytic	100	25V	CEMX 100M 25V
C_3	Electrolytic	10	25V	CEMX 10MF 25V
C_4	Electrolytic	10	25V	CEMX 10MF 25V
C_5	Electrolytic	47	25V	CEMX 47MF 25V
C_6	Electrolytic	47	25V	CEMX 47MF 25V
C_7	Electrolytic	10	25V	CEMX 10MF 25V
C_8	Electrolytic	10	25V	CEMX 10MF 25V
C_9	Mylar	0.047	50V	CQMA 473M 50
C_{10}	Mylar	0.047	50V	CQMA 473M 50
C_{11}	Mylar	0.047	50V	CQMA 473M 50
C_{12}	Mylar	0.047	50V	CQMA 473M 50
C_{13}	Mylar	3300p	50V	CQMA 332M 50
C_{14}	Mylar	3300p	50V	CQMA 332M 50
C_{15}	Electrolytic	10	25V	CEMX 10MF 25V
C_{16}	Electrolytic	10	25V	CEMX 10MF 25V
C_{17}	Electrolytic	1	25V	CEMX 1MF 25V
C_{18}	Electrolytic	1	25V	CEMX 1MF 25V
C_{19}	Electrolytic	47	25V	CEMX 47MF 25V

C20	Electrolytic	47	25V	CEMX 47MF 25V
C21	Electrolytic	100	25V	CEMX 100MF 25V
C22	Electrolytic	100	25V	CEMX 100MF 25V
C23	Ceramic	100p	50V	CCDSL 101K 50
C24	Ceramic	100p	50V	CCDSL 101K 50

RESISTORS

Symbol	Description		Part No.
R1	Carbon film	1k	RF¼PS 1K-K
R2	Carbon film	1k	RF¼PS 1K-K
R3	Carbon film	47k	RF¼PS 47K-K
R4	Carbon film	47k	RF¼PS 47K-K
R5	Carbon film	33k	RF¼PS 33K-K
R6	Carbon film	33k	RF¼PS 33K-K
R7	Carbon film	150k	RF¼PS 150K-K
R8	Carbon film	150k	RF¼PS 150K-K
R9	Carbon film	3.9k	RF¼PS 3R9K-K
R10	Carbon film	3.9k	RF¼PS 3R9K-K
R11	Carbon film	1.2k	RF¼PS 1R2K-K
R12	Carbon film	1.2k	RF¼PS 1R2K-K
R13	Carbon film	6.8k	RF¼PS 6R8K-K
R14	Carbon film	6.8k	RF¼PS 6R8K-K
R15	Carbon film	10k	RF¼PS 10K-K
R16	Carbon film	10k	RF¼PS 10K-K
R17	Carbon film	1k	RF¼PS 1K-K
R18	Carbon film	1k	RF¼PS 1K-K
R19	Carbon film	10k	RF¼PS 10K-K
R20	Carbon film	10k	RF¼PS 10K-K
R21	Carbon film	4.7k	RF¼PS 4R7K-K
R22	Carbon film	4.7k	RF¼PS 4R7K-K
R23	Carbon film	330k	RF¼PS 330K-K
R24	Carbon film	330k	RF¼PS 330K-K
R25	Carbon film	150k	RF¼PS 150K-K
R26	Carbon film	150k	RF¼PS 150K-K
R27	Carbon film	10k	RF¼PS 10K-K
R28	Carbon film	10k	RF¼PS 10K-K
R29	Carbon film	2.2k	RF¼PS 2R2K-K
R30	Carbon film	2.2k	RF¼PS 2R2K-K
R31	Carbon film	1.8k	RF¼PS 1R8K-K
R32	Carbon film	1.8k	RF¼PS 1R8K-K

POTENTIOMETERS

Symbol	Description	Part No.
VR1	BASS CONTROL (100KΩ-A)	C82-045
VR2	TREBLE CONTROL (100KΩ-A)	C82-045

TRANSISTORS

Symbol	Description	Part No.
Q1	2SC458LG-B	
Q2	2SC458LG-B	
Q3	2SC458LG-B	
Q4	2SC458LG-B	

MAIN AMP UNIT (W15-052)
CAPACITORS

Symbol	Description			Part No.
C1	Electrolytic	100	25V	CEMX 100MF25V
C2	Electrolytic	100	25V	CEMX 100MF25V
C3	Electrolytic	10	10V	CEMX 10M F10V
C4	Electrolytic	10	10V	CEMX 10MF10V
C5	Electrolytic	22	25V	CEMX 22MF25V
C6	Electrolytic	22	25V	CEMX 22MF 25V
C7	Electrolytic	47	3V	CEMX 47MF 3V
C8	Electrolytic	47	3V	CEMX 47MF 3V
C9	Ceramic	56p	50V	CKDYZ 560K 50
C10	Ceramic	56p	50V	CKDYZ 560K 50
C11	Electrolytic	100	3V	CEMX 100MF 3V
C12	Electrolytic	100	3V	CEMX 100MF 3V
C13	Electrolytic	100	50V	CEMX 100MF 3V
C14	Electrolytic	100	50V	CEMX 100MF 3V
C15	Ceramic	0.01	50V	CKDYZ 103M 50
C16	Ceramic	0.01	50V	CKDYZ 103M 50
C17	Ceramic	100p	50V	CCDSL 101K 50
C18	Ceramic	100p	50V	CCDSL 101K 50
C19	Ceramic	300p	50V	CCDSL 301K 50
C20	Ceramic	300p	50V	CCDSL 301K 50

RESISTORS

Symbol	Description			Part No.
R1	Carbon film	150k		RF¼PS 150K-K
R2	Carbon film	150k		RF¼PS 150K-K
R3	Carbon film	15k		RF¼PS 15K-K
R4	Carbon film	15k		RF¼PS 15K-K
R5	Carbon film	220k		RF¼PS 220K-K
R6	Carbon film	220k		RF¼PS 220K-K
R7	Carbon film	22k		RF¼PS 22K-K
R8	Carbon film	22k		RF¼PS 22K-K
R9	Carbon film	4.7k		RF¼PS 4R7K-K
R10	Carbon film	4.7k		RF¼PS 4R7K-K
R11	Carbon film	470		RF¼PS 470-K
R12	Carbon film	470		RF¼PS 470-K
R13	Carbon film	150		RF¼PS 150-K
R14	Carbon film	150		RF¼PS 150-K
R15	Carbon film	82k		RF¼PS 82K-K
R16	Carbon film	82k		RF¼PS 82K-K
R17	Carbon film	3.3k		RF¼PS 3R3K-K
R18	Carbon film	3.3k		RF¼PS 3R3K-K
R19	Carbon film	68		RF¼PS 68-K
R20	Carbon film	68		RF¼PS 68-K
R21	Carbon film	4.7k		RF¼PS 4R7K-K
R22	Carbon film	4.7k		RF¼PS 4R7K-K
R23	Carbon film	6.8k		RF¼PS 6R8K-K
R24	Carbon film	6.8k		RF¼PS 6R8K-K
R25	Carbon film	220		RF¼PS 220-K
R26	Carbon film	220		RF¼PS 220-K
R27	Carbon film	10		RF¼PS 10-K
R28	Carbon film	10		RF¼PS 10-K
R29	Carbon film	220		RF¼PS 220-K
R30	Carbon film	220		RF¼PS 220-K
R31	Wire wound	0.5	5W	RO5B OR5-K
R32	Wire wound	0.5	5W	RO5B OR5-K
R33	Wire wound	0.5	5W	RO5B OR5-K
R34	Wire wound	0.5	5W	RO5B OR5-K
R35	Carbon film	22		RF¼PS 22-K
R36	Carbon film	22		RF¼PS 22-K
R37	Carbon film	15k		RF¼PS 15K-K
R38	Carbon film	15k		RF¼PS 15K-K
R39	Carbon film	15k		RF¼PS 15K-K
R40	Carbon film	15k		RF¼PS 15K-K

POTENTIOMETERS

Symbol	Description	Part No.
VR1	Bias Control (50KΩ-B) Semi-fixed	C92-044
VR2	Bias Control (50KΩ-B) Semi-fixed	C92-044
VR3	Bias Control (50Ω-B) Semi-fixed	C92-046
VR4	Bias Control (50Ω-B) Semi-fixed	C92-046

SEMICONDUCTORS

Symbol	Description	Part No.
D_1	STV-3 Varistor	
D_2	STV-3 Varistor	
Q_1	2SC870 Transistor	
Q_2	2SC870 Transistor	
Q_3	2SC627 Transistor	
Q_4	2SC627 Transistor	
Q_5	2SC484-Y Transistor	
Q_6	2SC484-Y Transistor	
Q_7	2SA484-Y Transistor	
Q_8	2SA484-Y Transistor	
Q_9	2SD218 Transistor	
Q_{10}	2SD218 Transistor	
Q_{11}	2SD218 Transistor	
Q_{12}	2SD218 Transistor	

OTHER

Symbol	Description	Part No.
	Heat sink	M14-048
	Mylar insulator	E32-039
	Insulator bush	E32-039

DEMI SWITCH UNIT (W26-003)
SWITCH

Symbol	Description	Part No.
S_1	Demi switch	S31-030

MIC AMP UNIT (W21-003)
CAPACITORS

Symbol	Description				No. Part
C_1	Electrolytic	10		10V	CEMX 10MF 10V
C_2	Electrolytic	10		10V	CEMX 10MF 10V
C_3	Ceramic	30p		50V	CCDSL 300K 50
C_4	Ceramic	30p		50V	CCDSL 300K 50
C_5	Ceramic	100p		50V	CCDSL 101K 50
C_6	Ceramic	100p		50V	CCDSL 101K 50
C_7	Electrolytic	0.47		50V	CEMX R47MF50V
C_8	Electrolytic	0.47		50V	CEMX R47MF50V
C_9	Electrolytic	33		6V	CEMX 33MF 6VV
C_{10}	Electrolytic	33		6V	CEMX 33MF 6VV
C_{11}	Electrolytic	10		10V	CEMX 10MF 10V
C_{12}	Electrolytic	10		10V	CEMX 10MF 10V

RESISTORS

Symbol	Description			Part No.
R_1	Carbon film	1k		RF¼PS 1K-K
R_2	Carbon film	1k		RF¼PS 1K-K
R_3	Carbon film	150k		RF¼PS 150K-K
R_4	Carbon film	150k		RF¼PS 150K-K
R_5	Carbon film	220k		RF¼PS 220K-K
R_6	Carbon film	220k		RF¼PS 220K-K
R_7	Carbon film	120k		RF¼PS 120K-K
R_8	Carbon film	120k		RF¼PS 120K-K
R_9	Carbon film	390		RF¼PS 390-K
R_{10}	Carbon film	390		RF¼PS 390-K
R_{11}	Carbon film	470k		RF¼PS 470K-K
R_{12}	Carbon film	470K		RF¼PS 470K-K
R_{13}	Carbon film	15k		RF¼PS 15K-K
R_{14}	Carbon film	15k		RF¼PS 15K-K
R_{15}	Carbon film	2.7k		RF¼PS 2R7K-K
R_{16}	Carbon film	2.7k		RF¼PS 2R7K-K
R_{19}	Carbon film	27k		RF¼PS 27K-K
R_{20}	Carbon film	27k		RF¼PS 27K-K
R_{21}	Carbon film	56k		RF¼PS 56K-K
R_{22}	Carbon film	56k		RF¼PS 56K-K
R_{23}	Carbon film	2.2k		RF¼PS 2R2K-K
R_{24}	Carbon film	2.2k		RF¼PS 2R2K-K

TRANSISTORS

Symbol	Description	Part No.
Q_1	2SC871-GR or BL	
Q_2	2SC871-GR or BL	
Q_3	2SC870	
Q_4	2SC870	

REVERB AMP UNIT (W28-002)
CAPACITORS

Symbol	Description				Part No.
C_1	Electrolytic	0.1		25V	CSYA R1MF 25V
C_2	Electrolytic	0.1		25V	CSYA R1MF 25V
C_3	Ceramic	100p		50V	CCDSL 101K 50
C_4	Ceramic	100p		50V	CCDSL 101K 50
C_5	Electrolytic	10		25V	CEMX 10MF 25V
C_6	Electrolytic	10		25V	CEMX 10MF 25V
C_7	Mylar	0.033		50V	CQMA 333K 50
C_8	Electrolytic	10		25V	CEMX 10MF 25V
C_9	Electrolytic	33		50V	CEMX 33MF 50V
C_{10}	Ceramic	330p		50V	CCDSL 331K 50
C_{11}	Electrolytic	33		50V	CEMX 33MF 50V
C_{12}	Mylar	0.022		50V	CQMA 223K 50
C_{13}	Mylar	0.022		50V	CQMA 223K 50
C_{14}	Electrolytic	10		25V	CEMX 10MF 25V
C_{15}	Electrolytic	10		25V	CEMX 10MF 25V
C_{16}	Mylar	0.022		50V	CQMA 223K 50
C_{17}	Mylar	0.022		50V	CQMA 223K 50
C_{18}	Electrolytic	0.1		25V	CSYA R1MF 25V
C_{19}	Electrolytic	0.1		25V	CSYA R1MF 25V

RESISTORS

Symbol	Description			Part No.
R_1	Carbon film	1k		RF¼PS 1K-K
R_2	Carbon film	1k		RF¼PS 1K-K
R_3	Carbon film	330k		RF¼PS 330K-K
R_4	Carbon film	330k		RF¼PS 330K-K
R_5	Carbon film	470k		RF¼PS 470K-K
R_6	Carbon film	470k		RF¼PS 470K-K
R_7	Carbon film	10k		RF¼PS 10K-K
R_8	Carbon film	10k		RF¼PS 10K-K
R_9	Carbon film	220k		RF¼PS 220K-K
R_{10}	Carbon film	220k		RF¼PS 220K-K
R_{11}	Carbon film	5.6k		RF¼PS 5R6K-K
R_{12}	Carbon film	5.6k		RF¼PS 5R6K-K
R_{13}	Carbon film	330k		RF¼PS 330K-K
R_{14}	Carbon film	22k		RF¼PS 22K-K
R_{15}	Carbon film	3.3k		RF¼PS 3R3K-K
R_{16}	Carbon film	220		RF¼PS 220-K

R17	Carbon film	3.9k		RF¼PS 3R9K-K
R18	Carbon film	2.2k		RF¼PS 2R2K-K
R19	Carbon film	56k		RF¼PS 56K-K
R20	Carbon film	5.6k		RF¼PS 5R6K-K
R21	Carbon film	1k		RF¼PS 1K-K
R22	Carbon film	270		RF¼PS 270-K
R23	Carbon film	150		RF¼PS 150-K
R24	Carbon film	39		RF¼PS 39-K
R25	Carbon film	39		RF¼PS 39-K
R26	Carbon film	47		RF¼PS 47-K
R27	Carbon film	100		RF¼PS 100-K
R28	Carbon film	1k		RF¼PS 1K-K
R29	Carbon film	390k		RF¼PS 390K-K
R30	Carbon film	120k		RF¼PS 120K-K
R31	Carbon film	22k		RF¼PS 22K-K
R32	Carbon film	10k		RF¼PS 10K-K
R33	Carbon film	560		RF¼PS 560-K
R34	Carbon film	10k		RF¼PS 10K-K
R35	Carbon film	10k		RF¼PS 10K-K
R36	Carbon film	390k		RF¼PS 390K-K
R37	Carbon film	390k		RF¼PS 390K-K
R38	Carbon film	27k		RF¼PS 27K-K
R39	Carbon film	27k		RF¼PS 27K-K
R40	Carbon film	10k		RF¼PS 10K-K
R41	Carbon film	10k		RF¼PS 10K-K
R42	Carbon film	680		RF¼PS 680-K
R43	Carbon film	680		RF¼PS 680-K

TRANSISTORS

Symbol	Description	Part No.
Q1	2SC870-Y	
Q2	2SC870-Y	
Q3	2SC870-Y	
Q4	2SC734-O	
Q5	2SC734P-Y	
Q6	2SA561P-O	
Q7	2SC870-Y	
Q8	2SC870-Y	

POWER SUPPLY UNIT (W16-028)
CAPACITORS

Symbol	Description			Part No.
C1	Electrolytic	100	50V	CEMX 100MF 50V
C2	Ceramic	100p	50V	CCDSL 101K 50
C3	Electrolytic	100	35V	CEMX 100MF 35V
C4	Electrolytic	220	25V	CEMX 220MF 25V
C5	Electrolytic	100	25V	CEMX 100MF 25V
C6	Electrolytic	100	26V	CEMX 100MF 25V
C7	Electrolytic	220	16V	CEMX 220MF 16V
C8	Ceramic	0.01	DC 1.4KV	C43-003
C9	Ceramic	0.01	DC 1.4KV	C43-003

RESISTORS

Symbol	Description			Part No.
R1	Carbon film	4.7k		RF¼PS 4R7K-K
R2	Carbon film	150k		RF¼PS 150K-K
R3	Carbon film	33k		RF¼PS 33K-K
R4	Carbon film	15k		RF¼PS 15K-K
R5	Wire wound	680	2W	R02 680-K
R6	Carbon film	3.9k		RF¼PS 3R9K-K
R7	Carbon film	33k		RF¼PS 33K-K
R8	Carbon film	18k		RF¼PS 18K-K
R9	Carbon film	3.9k		RF¼PS 3R9K-K
R10	Wire wound	470	1W	R01 470-K
R11	Carbon film	47		RF¼PS 47-K
R12	Carbon film	10		RF¼PS 10-K

SEMICONDUCTORS

Symbol	Description	Part No.
D1	1S1850 Diode	
D2	1S1850 Diode	
D3	1S338 Diode	
Q1	2SC627 Transistor	
Q2	2SC485 Transistor	
Q3	2SC968 Transistor	
Q4	2SC971 Transistor	

OTHER

Symbol	Description	Part No.
	Heat sink	M14-024

POWER SUPPLY UNIT (W16-029)
CAPACITORS

Symbol	Description			Part No.
C1	Ceramic	0.01	DC 1.4KV	C43-003
C2	Ceramic	0.01	DC 1.4KV	C43-003
C3	Ceramic	0.01	DC 1.4KV	C43-003
C4	Ceramic	0.01	DC 1.4KV	C43-003

DIODES

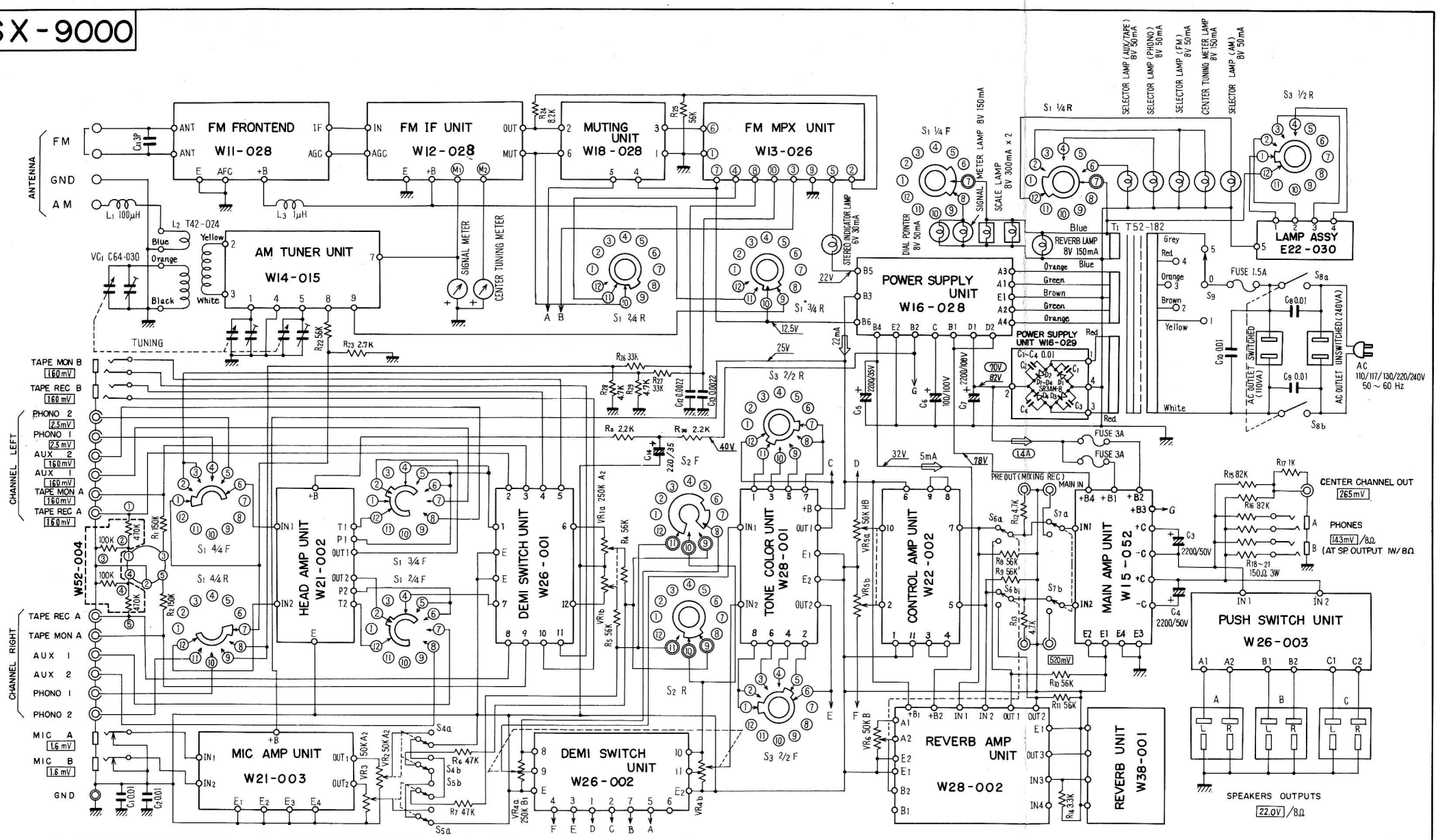
Symbol	Description	Part No.
D1	SR3AM-8	
D2	SR3AM-8	
D3	SR3AM-8	
D4	SR3AM-8	

PIONEER ELECTRONIC CORPORATION
15-5, 4-Chome, Ohmori-nishi, Ohta-ku, Tokyo, Japan
PIONEER ELECTRONICS U.S.A. CORPORATION
140 Smith St., Farmingdale, LI., N.Y. 11735, U.S.A.
PIONEER ELECTRONIC (EUROPE) NV
Frankrijklei 64-68, 2000 Antwerp, Belgium

<70G01Y53S>

Printed in Japan
< R12-066-0 >

SX-9000



S1 SELECTOR SWITCH (S13-038)
1. A M
2. FM MONO
3. FM AUTO
4. PHONO 1
5. PHONO 2
6. AUX 1
7. AUX 2

S2 MODE SWITCH (S14-035)
1. REV
2. ST
3. LT
4. RT
5. L + R

S3 TONE COLOR SWITCH (S15-035)
1. VIVD
2. BASS
3. FLAT
4. SOFT

S4 MIC A SWITCH (VR2)
OFF ⟷ ON

S5 MIC B SWITCH (VR3)
OFF ⟷ ON

S6 REVERB SWITCH (VR6)
OFF ⟷ ON

S7 INTERCUPLED SWITCH (S41-022)
INTERCUPLED
⟷ PRE & MAIN SEPARATED

S8 POWER SWITCH (S11-030)
OFF ⟷ ON

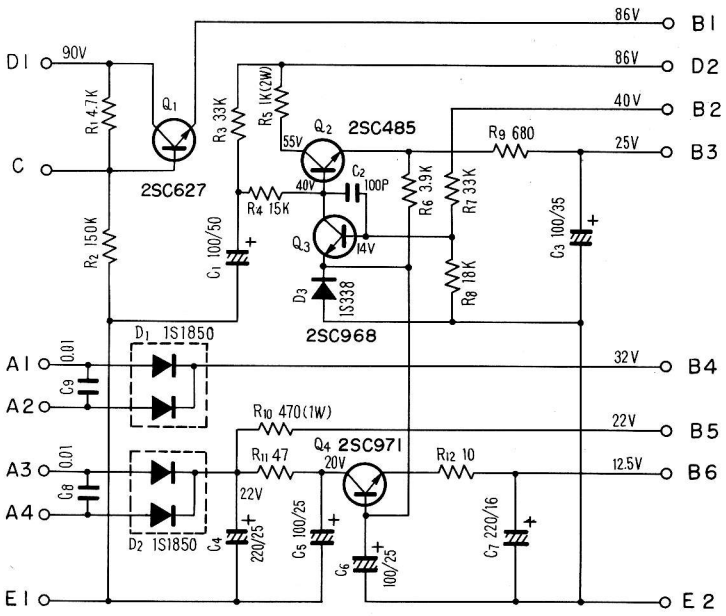
S9 LINE VOLTAGE SELECTOR (S11-018)
OFF/110V/120V/130V/220V/240V

VR1ab SOURCE VOLUME (C88-010)
VR4ab MASTER VOLUME (C88-010)
VR2 MIC A VOLUME (C85-056)
VR3 MIC B VOLUME (C85-056)
VR5 BALANCE VOLUME (C85-052)
VR6 REVERB VOLUME (C85-055)

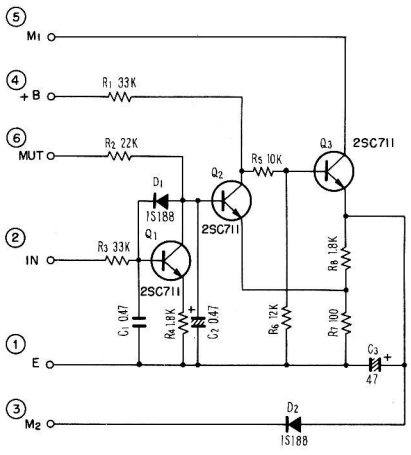
⟸ D.C CURRENT
A AT NO SIGNAL INPUT
(A) AT 60 WATTS OUTPUT
⟵ D.C VOLTAGE
V AT NO SIGNAL INPUT
(V) AT 60 WATT OUTPUT
[V] INPUT OR OUTPUT VOLTAGE ACQUIRED 75 WATTS OUTPUT AT 1KHz (R.M.S)

	SECTION	ITEM NO.	VACANT
1	R	R1 ~ R29	R30 ~
2	C	C1 ~ C13	C14 ~
3	L	L1 ~ L3	L4 ~

POWER SUPPLY UNIT
W16-028

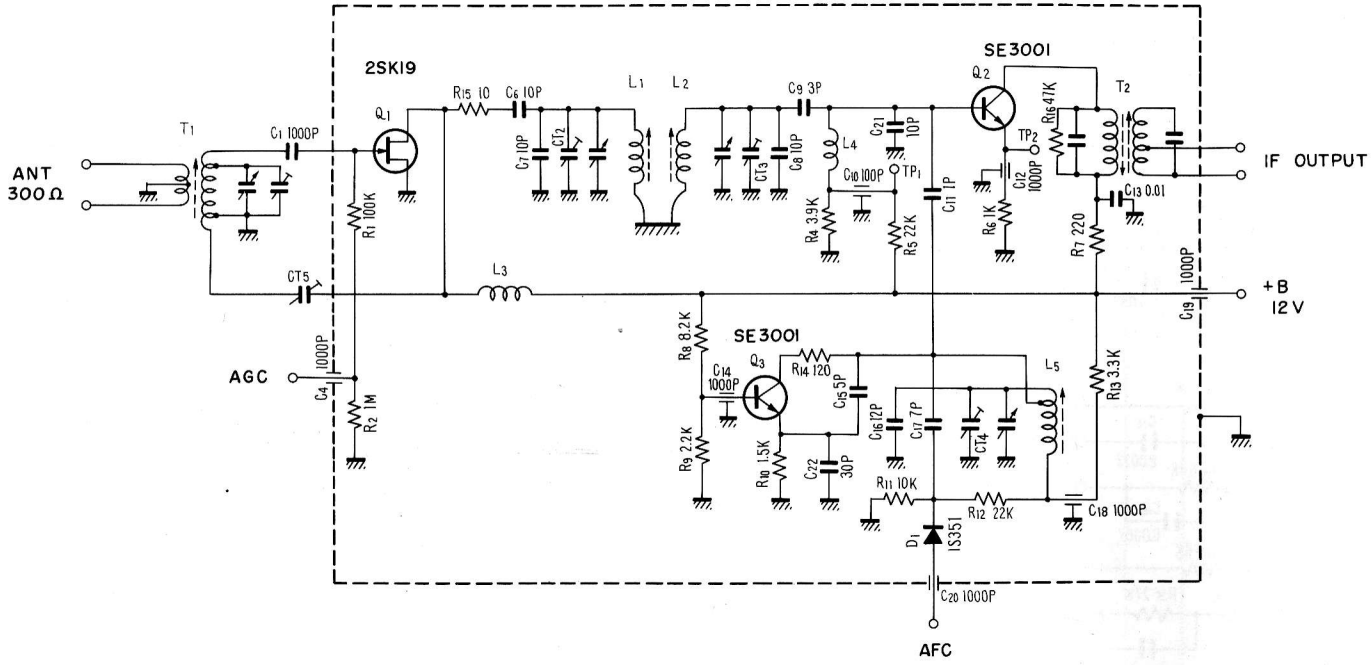


MUTING UNIT
W18-028



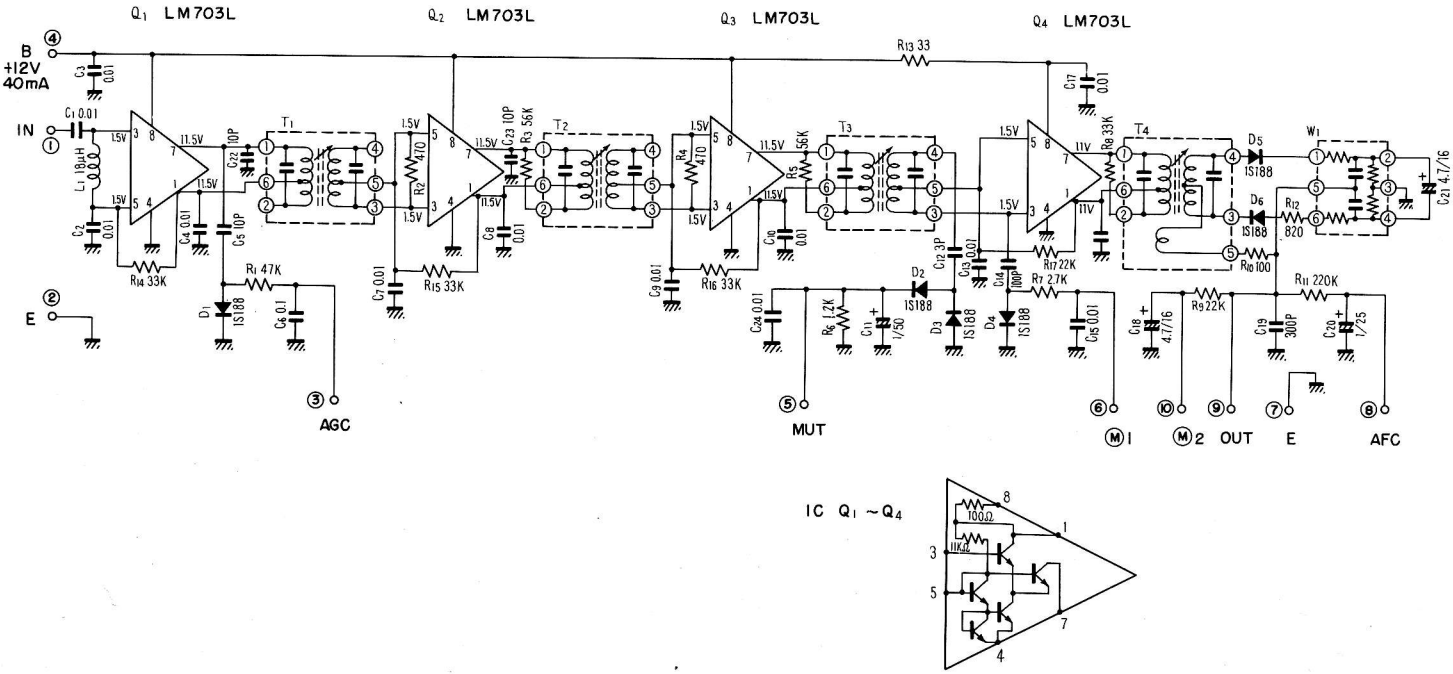
FM FRONT-END

W11-028



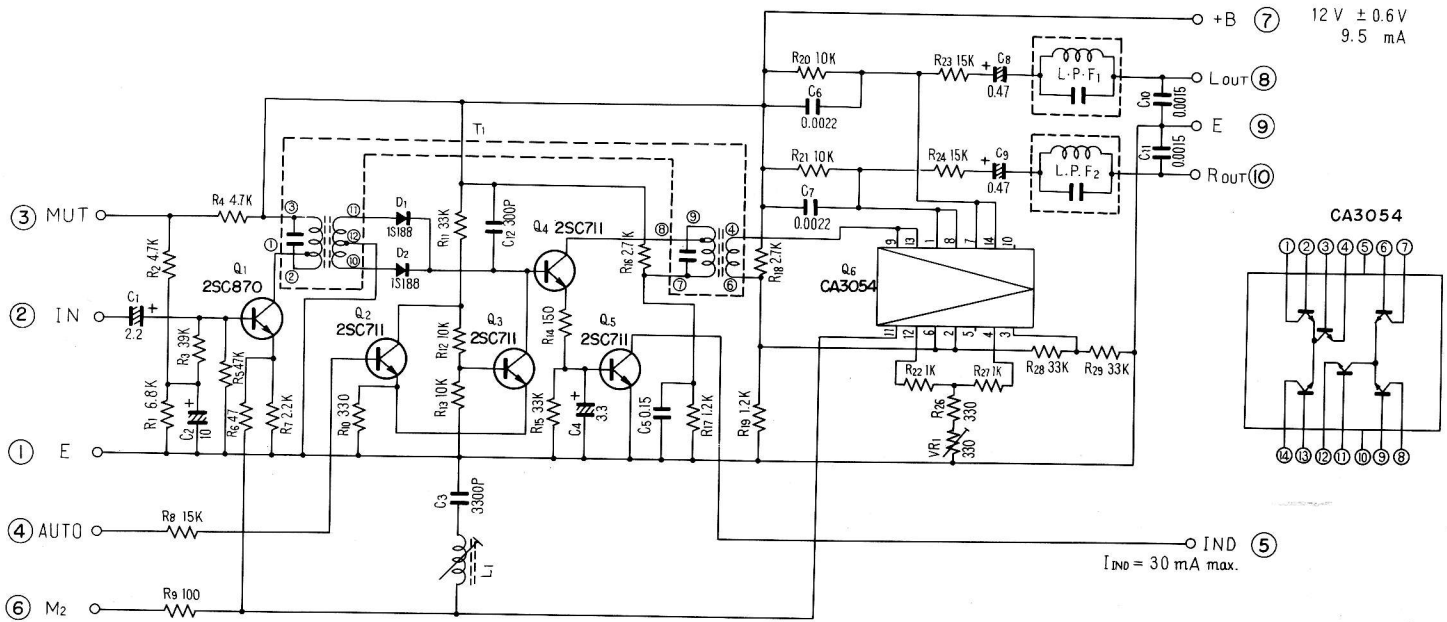
FM IF UNIT

W12-028



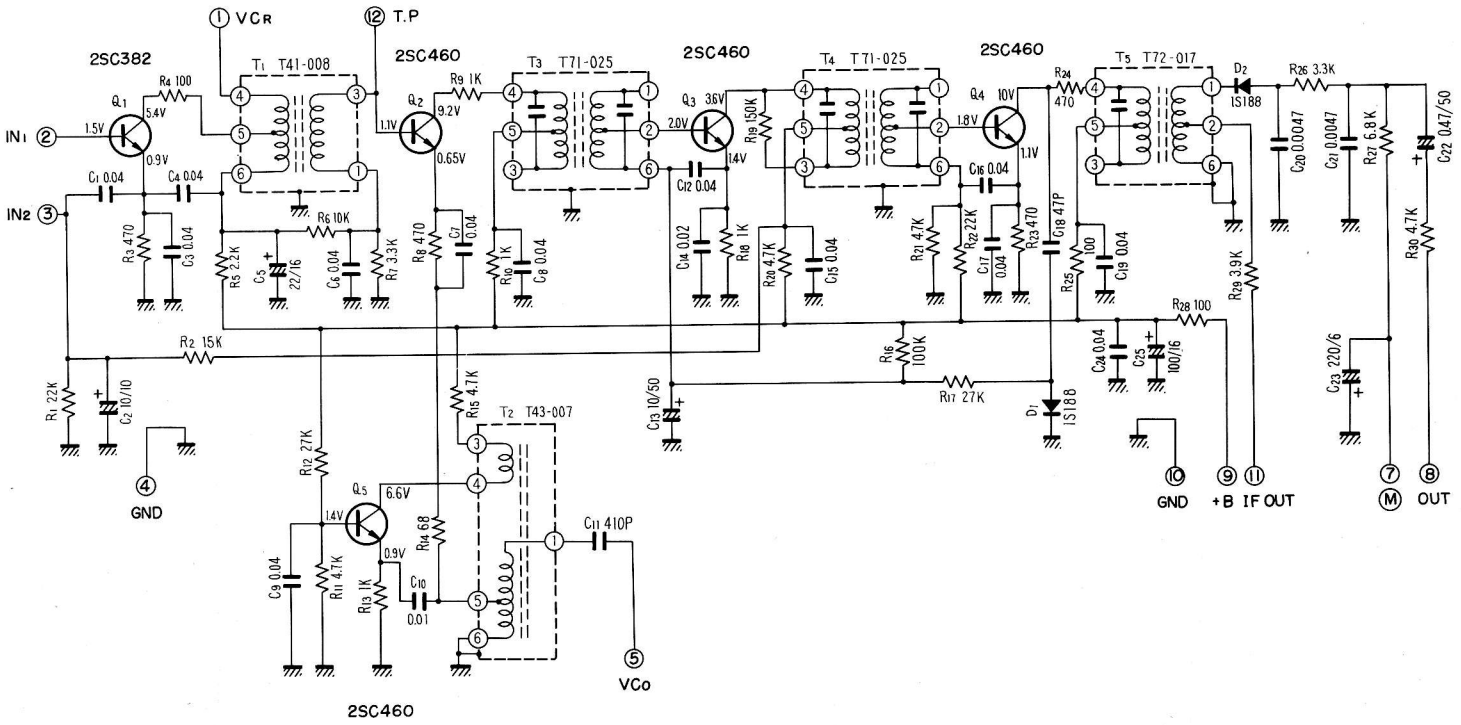
MPX UNIT

W13 - 0.26

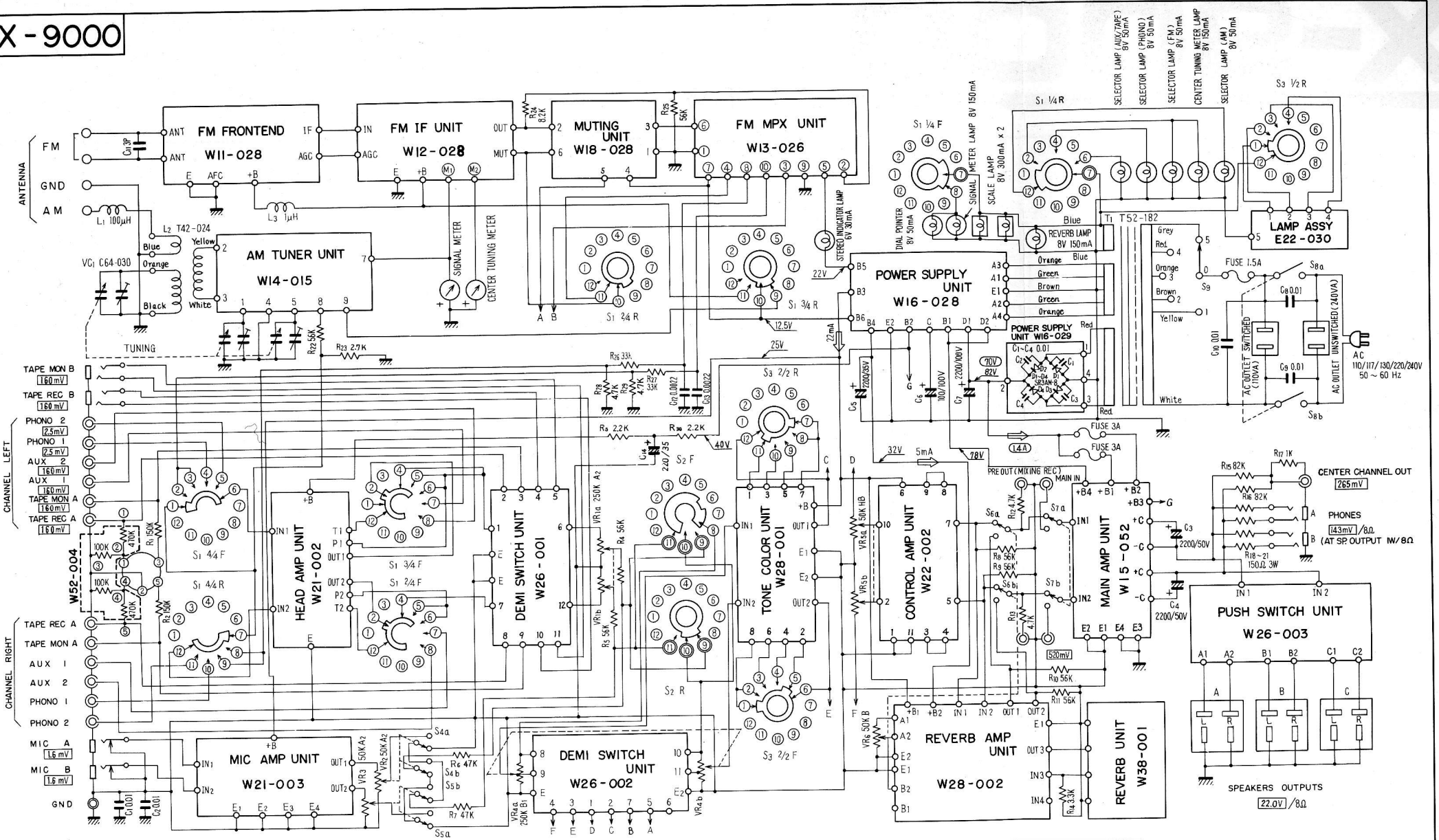


AM TUNER UNIT

W14 - 015



SX-9000



S1 SELECTOR SWITCH (S13-038)
1. A M
2. FM MONO
3. FM AUTO
4. PHONO 1
5. PHONO 2
6. AUX 1
7. AUX 2

S2 MODE SWITCH (S14-035)
1. REV
2. ST
3. LT
4. RT
5. L + R

S3 TONE COLOR SWITCH (S15-035)
1. VIVD
2. BASS
3. FLAT
4. SOFT

S4 MIC A SWITCH (VR2) OFF ⟷ ON

S5 MIC B SWITCH (VR3) OFF ⟷ ON

S6 REVERB SWITCH (VR6) OFF ⟷ ON

S7 INTERCOUPLED SWITCH (S41-022) INTERCOUPLED ⟷ PRE & MAIN SEPARATED

S8 POWER SWITCH (S11-030) OFF ⟷ ON

S9 LINE VOLTAGE SELECTOR (S11-018) OFF/110V/120V/130V/220V/240V

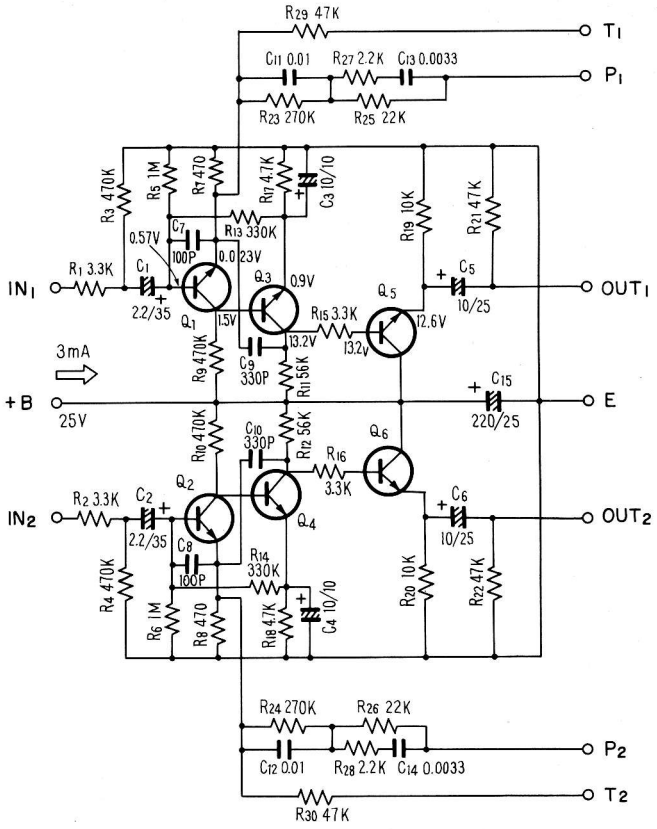
VR1ab SOURCE VOLUME (C88-010)
VR4ab MASTER VOLUME (C88-010)
VR2 MIC A VOLUME (C85-056)
VR3 MIC B VOLUME (C85-056)
VR5 BALANCE VOLUME (C85-052)
VR6 REVERB VOLUME (C85-055)

⟸ D.C CURRENT
A AT NO SIGNAL INPUT
(A) AT 60 WATTS OUTPUT
D.C VOLTAGE
V AT NO SIGNAL INPUT
(V) AT 60 WATT OUTPUT
[V] INPUT OR OUTPUT VOLTAGE ACQUIRED 75 WATTS OUTPUT AT 1 K Hz (R.M.S)

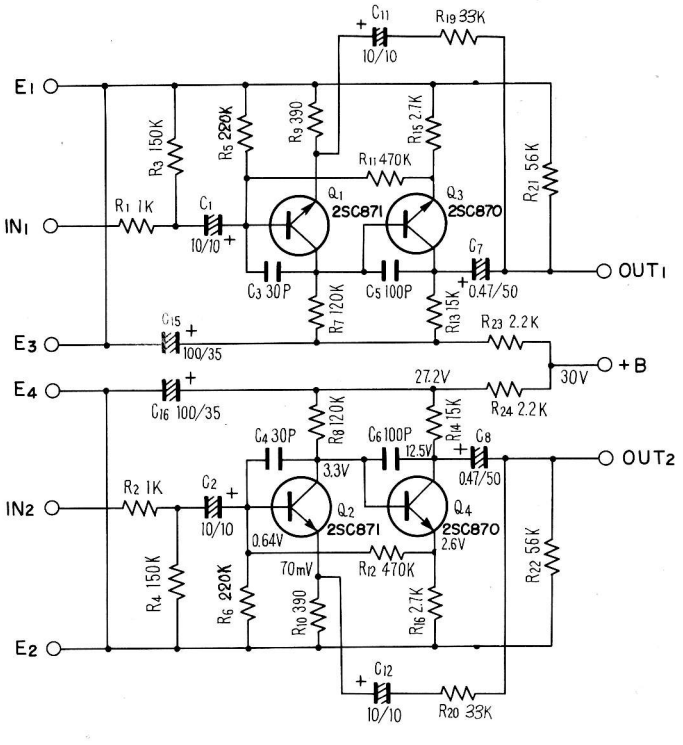
	SECTION	ITEM NO.	VACANT
1	R	R1 ~ R29	R30 ~
2	C	C1 ~ C13	C14 ~
3	L	L1 ~ L3	L4 ~

HEAD AMP UNIT
W21-002

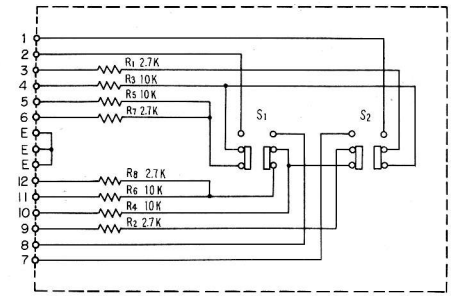
$Q_1 \sim Q_6$ 2SC871 or 2SC458LG



MIC AMP UNIT
W21-003



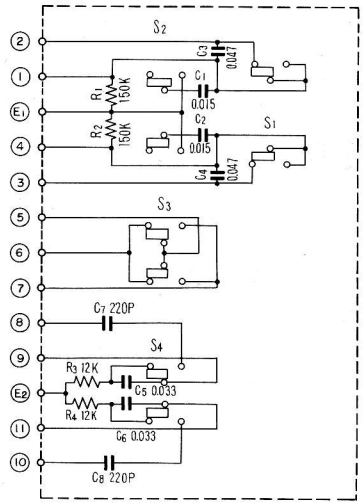
DEMI SWITCH UNIT
W26-001



S1 : TAPE MONITOR A OFF ⟷ ON

S2 : TAPE MONITOR B OFF ⟷ ON

DEMI SWITCH UNIT
W26-002



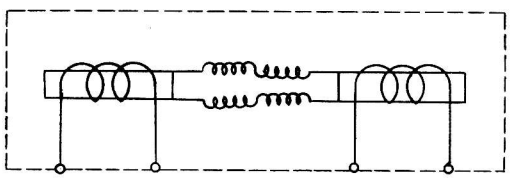
S1 : LOW CUT FILTER OFF ⟷ ON

S2 : HIGH CUT FILTER OFF ⟷ ON

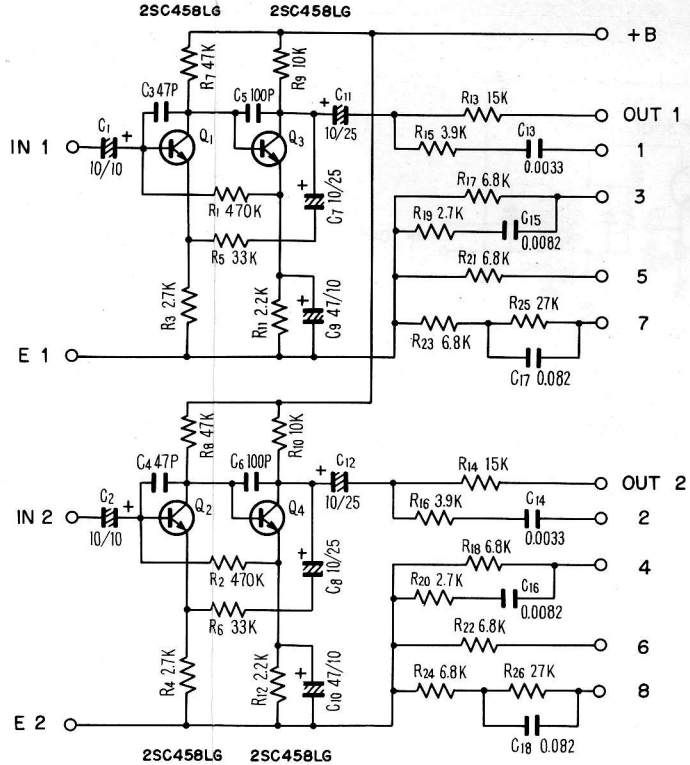
S3 : MUTING OFF ⟷ ON

S4 : LOUDNESS OFF ⟷ ON

REVERB UNIT
W38-001

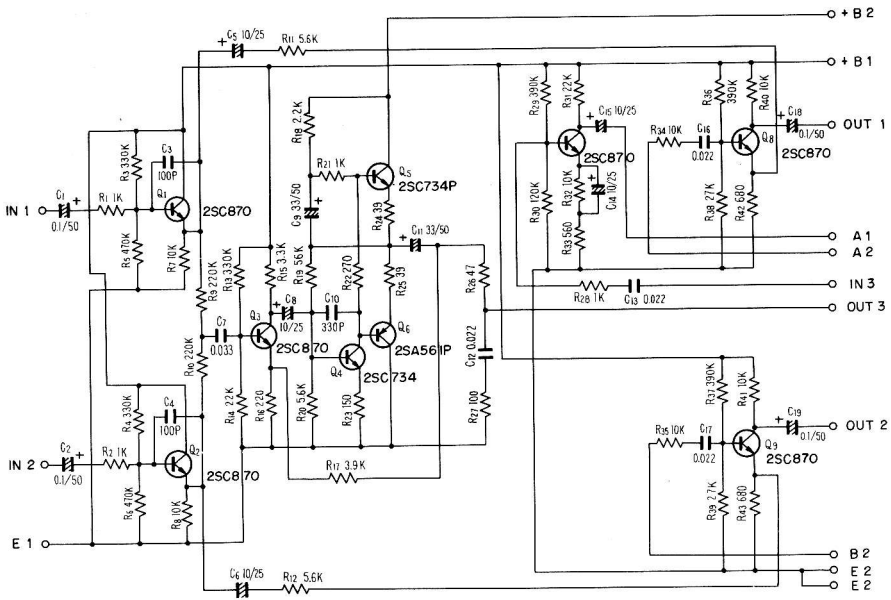


TONE COLOR UNIT
W28-001



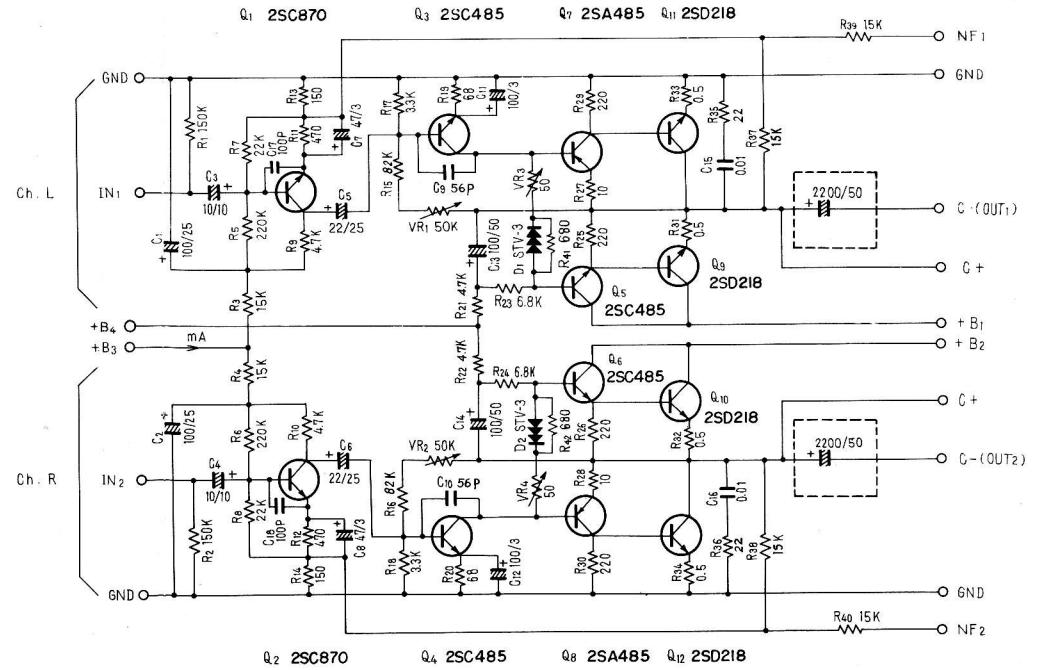
REVERB AMP UNIT

W28 - 002

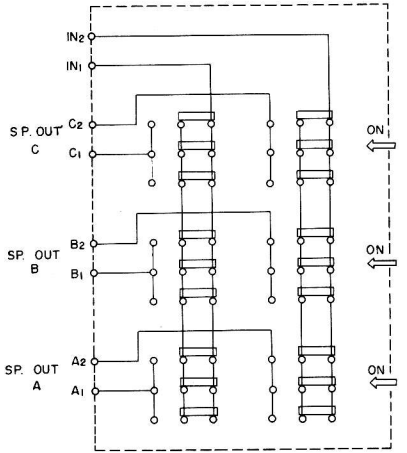


Q1	2SC870 or 2SC458L
Q2	2SC870 or 2SC458L
Q3	2SC870 or 2SC458L
Q4	2SC734
Q5	2SC734P or 2SC904
Q6	2SA561P or 2SA569
Q7	2SC870 or 2SC458L
Q8	2SC870 or 2SC458L
Q9	2SC870 or 2SC458L

MAIN AMP UNIT
W15-052



PUSH SWITCH UNIT
W26-003



CONTROL AMP UNIT

W22-002